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BASAL METABOLISM BEFORE AND AFTER EXPOSURE TO HIGH TEMPERATURES AND VARIOUS HUMIDITIES.[1]

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The increased body metabolism of inhabitants living in cold climates as compared with that for persons living in warmer climates is frequently referred to in the literature, but, according to Hill and Campbell,[5] the evidence for this has, as far as they know, been empirical, resting upon increase of appetite of an individual on journeying to an Alpine or an Arctic region.

Contrary to what might be expected, metabolism also increases with exposure to high temperatures. Recently this fact has been generally recognized; but the evidence is largely drawn from experiments made on small animals. Although the little work that has been done on human beings substantiates this belief, the relation between the metabolic rate and external temperature conditions remains yet to be found. Probably, the main difficulty in establishing this relation lies in the fact that in high temperatures the wet-bulb temperature of the air becomes a much more important factor than the dry-bulb temperature, in considering the thermal properties of the human body. The difficulty in evaluating the relative importance to be attached to these measurements is obvious. Air movement should also be considered, as there can be no adequate ventilation and constancy in temperature conditions without air motion.

With the development of the effective temperature scale it becomes an easy matter to study the effect of heat upon body metabolism. Effective temperature is an index of the intensity of heat felt by the human body as a result of external temperature, humidity, and air movement. In other words, it takes care of all three physical factors of the air, and therefore, reduces the relation to its simplest form involving only two variables.

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[5] Hill, Leonard, and Campbell, J. A.: Observations on Metabolism During Rest and Work with Special Reference to Atmospheric Cooling Power. Med. Res. Council, S. R. Series No. 73, Part 6, pp. 145-186.

As part of the general program of the investigation of the physiological effects of high temperatures with various humidities undertaken by the United States Public Health Service and the United States Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers in its laboratory at the Pittsburgh Experiment Station of the Bureau of Mines, a series of experiments was conducted for the purpose of establishing a direct correlation between the various factors pertaining to metabolism and external temperature conditions. An attempt was also made to correlate the metabolic rate to the principal physiological body reactions, as represented by body temperature and pulse rate, in an effort to find a body index for the rate of metabolism.

Although a large number of observations were made, many of them, on account of complicating influences such as eating within a few hours before the test, and unusual exertion on the part of the subject, were discarded. Although samples for analyses were collected from ten subjects, the large majority were collected from two subjects who became trained in the method used. Table 1 gives the average normal measurements for the subjects employed in the experiments, from which the body surface was determined by means of DuBois standard chart. The clothing worn by the subjects during the experiments consisted of light weight union underwear, work pants and shirt, socks and shoes.

TABLE 1.—*Measurements of subjects of experiments.*

Subject.	Weight in kilograms.	Height in centimeters.	Body surface, square meters.
W. J.	61.6	163.0	1.66
C. A. H.	64.5	183.1	1.84
R. L.	69.5	191.0	1.97
F. C. H.	72.0	171.3	1.84
C. P. Y.	59.2	167.0	1.68
W. E. M.	59.4	172.8	1.72
B. T.	71.1	174.7	1.86

PROCEDURE.

The first hundred samples were collected from subjects without any preliminary instructions. These samples were taken while the subjects were in a sitting position. Under these conditions, although the CO_2 produced and O_2 consumed invariably increased after exposure to high temperatures [6], it became quite impossible to disentangle the various factors which entered into the experiments. The remainder of the observations were made under the greatest degree of simplification, attained as follows:

Each subject refrained from eating breakfast on the morning of the test. On entering the primary room they assumed a recumbent

[6] McConnell, W. J., and Houghten, F. C.; Some Physiological Reactions to High Temperatures and Humidities. Jour. Amer. Soc. Heat. and Vent. Engr., vol. 29, No. 2, March 1923, pp. 141-144.

posture, and maintained a condition of rest as absolute as possible for a period of two hours before the first sample was taken. Frequently the subjects slept during that period. After the sample was taken, each subject was carried into the chamber where he continued to rest in the same position. In the chamber he was exposed to a constant high temperature and humidity over a period of time varying with his ability to endure the condition. At the end of this period another sample (sometimes two or three samples) was taken before the subject left the chamber. All experiments were conducted in still air.

METHOD OF COLLECTING SAMPLES.

The apparatus used in this work was constructed by the Bureau of Mines, and consists of a graduated gasometer, connected with a mouthpiece by means of 1¼-inch rubber tubing. A quick-acting valve controls the inlet of the gasometer. The bell of the gasometer is maintained in equilibrium with the incoming air. Considerable difficulty was experienced in obtaining a mouthpiece with valves suited for the tests. Several types of valves are available which, though satisfactory for use in certain breathing apparatus, could not be used in these experiments either because of a small amount of air leakage, or because of the impractical position in which the valve had to be held in order to function.

After some experimentation a valve[7] was developed and successfully used in the collection of the samples.

In order to become accustomed to the apparatus, the subject breathed through the gasometer for several minutes before the sample was taken, while at the same time the exhalations forced out the stagnant air in the system. Approximately 60 liters of expired air were collected from the subject in each sample. This was determined by multiplying the factor (which was found by calibration to be 0.0992 liter per centimeter rise on the meter stick) of the gasometer by the number of centimeter rise of the bell. All volumes were reduced to 0°C. temperature and dry, and 760 mm. barometric pressure. The ventilation rate or volume per minute was obtained by dividing the total volume by the time in minutes. From each sample collected, an average sample was analyzed on a Haldane apparatus[8] for CO_2 and O_2, from which the heat developed within the body, under the various external conditions, was computed, using Zung's table of calorific equivalents of 1 liter of oxygen.

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[7] Fulton, W. B.: An Improved Air Valve for Apparatus Used in Basal Metabolic Work. Arch. Int. Med. vol. 33, April 1924, pp. 497–499.

[8] Burrell, G. A., and Seibert, F. M.: The Sampling and Examination of Mine Gases and Natural Gas. Bull. 42, Bureau of Mines, 116 pp. Revised in 1924 by G. W. Jones. (In press.)

DATA AND RESULTS.

Although it is not the purpose of this paper to discuss the general principles of the science of metabolism or to review the enormous amount of literature on the subject which has been collected from many sources, the reader's attention is invited to some recent investigations in this subject. Moss[9], who is making a study of the subject, found an increase in food consumption with increase in temperature, and contemplates further experimentation on the exact cause of the increased metabolism. Barcroft and Marshall[10] have also carried on some recent experiments to determine the effect of exposure to heat. Under the conditions of these latter experiments, no commensurate rise in the metabolism was found. Unfortunately, the severity of the exposure is expressed in dry-bulb readings only; but judging from the pulse rates obtained, the wet-bulb readings were low, and, therefore, the effective temperature was low. Under these conditions a noticeable increase in metabolism would not be expected.

The data and results of the present series of experiments are presented in Table 2. With the exception of few experiments, initial samples were taken in the primary room, the temperature conditions of which are given in the left of column 3. The test chamber, or secondary room, conditions are given in the right of the same column, and the time of exposure before taking samples is shown in column 4. Columns 5 and 6 give, respectively, the CO_2 produced and the O_2 absorbed in liters per hour at 0°C temperature and 760 mm. of mercury barometric pressure. The computed ratio of the former to the latter, or respiratory quotient, is given in column 7. The total number of calories developed per hour is given in column 8, from which is calculated the heat produced within the body per square meter of body surface per hour, given in column 9. Columns 10 and 11 give the average physiological measures recorded during the period of time in which the samples were taken.

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[9] Moss, Prof. K. Neville: Some Effects of High Air Temperature Upon the Miner. Sixth Report to Committee on the Control of Atmospheric Conditions in Hot and Deep Mines. Annual general meeting, Institution of Mining Engineers (England), Nov. 29, 1923.

[10] Barcroft, Jos., and Marshall, E. K., Jr.: Note on the Effect of External Temperature on the Circulation in Man. Jour. of Physiology, vol. LVIII, Nos. 2 and 3, Dec. 28, 1923, pp. 145–156.

TABLE 2.—*Data and results.*

Test No. and date.	Subject.	Test room conditions.						Exposure before taking sample.				CO_2 output, liters per hour.	O_2 consumed, liters per hour.	Respiratory quotient.	Total calories per hour.	Calories per square meter of body surface per hour.	Rectal temperature, °F.	Pulse rate, beats per minute.
		Primary.			Secondary.			Primary room.		Secondary room.								
		Dry bulb.	Wet bulb.	Effective temperature.	Dry bulb.	Wet bulb.	Effective temperature.	Hours.	Minutes.	Hours.	Minutes.							
37 A. S. 6-4-23	W. J.	75.0	66.8	70.5				2	0			9.60	10.92	0.879	53.5	32.6	98.0	72
					105.6	104.2	104.3			2	0	22.14	22.50	0.984	113.1	69.2	102.1	158
	C. A. H.	75.0	66.8	70.5				2	20			15.36	16.44	0.934	81.6	44.3	98.4	64
					105.6	104.2	104.3			0	56	31.74	31.44	1.009	158.9	87.7	102.5	158
38 A. S. 6-8-23	W. J.	76.4	64.2	70.0				2	0			11.76	13.38	0.878	65.6	39.5	98.0	68
					100.0	100.0	100.0			1	37	16.86	15.84	1.063	81.1	49.4	101.7	132
	C. A. H.	76.4	64.2	70.0				2	25			12.48	13.44	0.929	66.7	36.8	98.2	60
					99.9	99.9	99.9			1	14	22.62	22.50	1.005	113.7	62.7	101.8	150
39 A. S. 6-11-23	W. J.	77.0	69.0	72.5				2	0			9.66	11.10	0.870	54.3	33.2	98.0	80
					95.0	95.0	95.0			1	54	13.20	13.74	0.961	68.6	41.9	99.3	96
	C. A. H.	77.0	69.0	72.5				2	20			11.88	13.08	0.908	64.6	35.6	99.0	76
					95.0	95.0	95.0			2	1	16.62	18.90	0.879	92.6	51.2	100.1	96
40 A. S. 6-27-23	W. J.	76.0	67.0	71.0				1	30			11.22	12.60	0.890	61.9	37.4	98.4	72
					104.6	104.6	104.6			1	2	29.82	26.34	1.130	137.5	83.8	102.0	140
	C. A. H.	76.0	67.0	71.0				1	50			15.66	16.32	0.960	81.5	43.3	98.0	70
					104.6	104.6	104.6			0	54	24.48	25.44	0.963	127.8	69.5	101.8	145
41 A. S. 6-29-23	W. J.	79.5	63.0	70.6				1	30			10.32	10.56	0.978	52.9	32.1	98.0	74
					105.3	105.3	105.3			1	0	23.16	22.26	1.040	113.5	68.7	100.8	114
	C. A. H.	79.5	63.0	70.6	105.3	105.3	105.3	1	55	1	20	27.42	25.20	1.087	129.3	79.3	101.9	136
					105.3	105.3	105.3			0	54	13.74	14.28	0.962	71.4	39.4	99.0	70
42 A. S. 7-2-23	W. J.	77.2	65.3	70.7				1	30			23.22	22.50	1.032	114.4	63.2	100.6	128
					105.1	105.1	105.1			0	58	11.94	12.36	0.966	61.9	37.7	97.8	80
	C. A. H.	77.2	65.3	70.7	105.1	105.1	105.1	1	50	1	18	18.48	16.80	1.100	86.8	52.9	100.8	120
					105.1	105.1	105.1			0	53	33.36	27.84	1.200	147.1	88.6	102.3	136
43 A. S. 7-6-23	R. L.	79.7	72.8	75.5				1	30			14.40	15.90	0.906	78.4	43.3	98.0	82
					140.0	93.2	100.1			1	21	29.88	26.88	1.112	139.3	75.6	101.6	144
	C. A. H.	79.7	72.8	75.5	140.0	93.2	100.1	1	50	2	10	12.48	14.04	0.890	69.0	35.2	98.0	64
					140.0	93.2	100.1			1	21	16.68	16.02	1.041	81.6	41.7	101.1	105
44 A. S. 7-10-23	F. C. H.	80.7	69.8	74.3				2	0			21.36	19.20	1.112	99.4	50.7	102.3	112
					104.8	104.8	104.8			1	0	15.12	15.90	0.951	79.3	43.2	98.0	72
					104.8	104.8	104.8			1	15	21.78	21.48	1.013	108.6	59.1	101.1	114
												11.58	12.30	0.942	61.2	33.3	99.0	70
												23.70	19.02	1.246	101.6	55.2	101.3	172
												24.78	17.94	1.381	98.7	53.7	102.2	186

TABLE 2.—*Data and results*—Continued.

Test No. and date.	Subject.	Test room conditions.						Exposure before taking sample.				CO_2 output, liters per hour.	O_2 consumed, liters per hour.	Respiratory quotient.	Total calories per hour.	Calories per square meter of body surface per hour.	Rectal temperature, °F.	Pulse rate, beats per minute.
		Primary.			Secondary.			Primary room.		Secondary room.								
		Dry bulb.	Wet bulb.	Effective temperature.	Dry bulb.	Wet bulb.	Effective temperature.	Hours.	Minutes.	Hours.	Minutes.							
46 A. S. 7-13-23	C. A. H.	81.8	70.8	75.1				2	0			13.56	13.68	0.992	68.9	38.1	98.6	66
					105.3	105.3	105.3			0	50	33.18	26.10	1.269	140.3	76.2	101.7	134
					105.3	105.3	105.3			1	10	35.22	21.84	1.612	126.3	69.8	102.4	140
49 A. S. 7-20-23	W. J.	82.1	68.2	74.0				1	35			11.22	12.12	0.925	60.1	36.5	98.2	75
					100.0	99.9	99.9			0	56	16.02	15.30	1.047	78.0	47.6	100.3	104
	C. A. H.	82.1	68.2	74.0				1	55			15.90	17.28	0.920	85.5	47.3	98.4	60
					100.0	99.9	99.9			0	40	22.74	21.24	1.071	108.0	59.7	99.7	110
					100.0	99.9	99.9			1	35	27.66	28.80	0.960	143.9	79.5	102.1	160
50 A. S. 7-23-23	W. J.				65.3	64.2	64.9			1	10	9.60	10.32	0.930	51.2	31.3	97.9	58
					65.3	64.2	64.9			3	16	13.14	13.44	0.977	67.4	41.2	96.8	56
	C. P. Y.				65.3	64.2	64.9			0	47	13.92	11.82	1.178	61.1	36.5	99.2	68
					65.3	64.2	64.9			3	46	24.48	15.84	1.549	90.3	53.4	97.6	62
	W. E. M.				65.3	64.2	64.9			0	18	11.52	12.00	0.960	60.0	35.3	98.0	70
					65.3	64.2	64.9			3	14	16.08	13.98	1.150	73.1	43.3	97.3	68
51 A. S. 7-24-23	W. J.				75.2	74.7	75.0			1	31	9.66	9.30	1.039	47.4	29.2	98.2	64
					75.2	74.7	75.0			4	36	10.38	10.08	1.029	51.2	31.2	98.0	60
	R. L.				75.2	74.7	75.0			1	55	10.98	11.16	0.985	56.1	28.7	97.9	64
					75.2	74.7	75.0			5	0	13.50	11.70	1.152	61.3	31.3	97.6	64
	W. E. M.				75.2	74.7	75.0			2	4	11.70	11.76	0.995	59.3	35.0	98.2	63
					75.2	74.7	75.0			5	11	11.76	12.12	0.970	60.7	35.8	97.8	68
52 A. S. 7-25-23	W. E. M.				84.7	68.3	75.0			2	14	11.22	10.62	1.057	54.4	32.0	98.1	70
					84.7	68.3	75.0			3	59	16.86	11.82	1.427	65.7	38.9	97.8	64
					84.7	68.3	75.0			4	57	13.08	11.34	1.153	59.4	35.1	97.8	64
					84.7	68.3	75.0			1	58	13.38	12.00	1.115	62.2	31.7	98.0	62
	R. L.				84.7	68.3	75.0			3	45	14.46	14.04	1.030	71.4	36.5	98.4	64
					84.7	68.3	75.0			4	43	13.98	12.30	1.138	64.1	32.9	98.4	66
53 A. S. 7-27-23	R. L.				102.3	77.8	85.0			2	32	12.24	12.06	1.015	61.0	31.1	98.6	70
					102.3	77.8	85.0			5	8	12.24	11.70	1.048	59.7	30.5	98.6	70
	W. E. M.				102.3	77.8	85.0			2	2	12.72	11.28	1.129	58.6	34.5	98.7	68
					102.3	77.8	85.0			4	52	15.12	13.38	1.130	68.0	39.7	98.5	70
54 A. S. 7-28-23	R. L.				85.0	85.0	85.0			1	23	13.56	11.88	1.141	62.0	31.7	98.1	66
					85.0	85.0	85.0			4	11	15.06	12.24	1.230	65.2	33.3	97.8	64
	W. E. M.				85.0	85.0	85.0			1	22	17.76	12.60	1.410	69.8	40.8	98.5	72
					85.0	85.0	85.0			4	6	13.20	10.62	1.243	56.7	33.6	98.2	66

1 E. 7-10-24	W. J.	74.5	62.5	68.2	67.6	64.3	66.0	1	30	0	59	10.56	11.76	0.897	57.9	35.3	98.2	72
					67.6	64.3	66.0			2	21	10.02	11.22	0.893	55.2	33.6	97.7	66
	B. T.	74.5	62.5	68.2	67.6	64.3	66.0	1	40	1	26	10.50	11.64	0.902	57.4	35.0	97.5	60
					67.6	64.3	66.0			2	48	10.14	12.12	0.837	58.8	32.0	98.9	62
	W. E. M.	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	11.28	13.26	0.851	64.5	35.1	98.2	58
					67.6	64.3	66.0			3	7	11.76	13.86	0.848	67.3	36.6	98.0	57
2 E. 7-11-24	W. J.	73.7	59.2	66.5	59.4	55.7	57.9	1	40	1	3	11.58	13.44	0.862	65.6	38.7	98.4	78
					59.4	55.7	57.9			1	31	12.24	13.86	0.883	68.0	40.3	98.4	70
	B. T.	73.7	59.2	66.5	59.4	55.7	57.9	1	10	3	7	12.54	14.46	0.867	70.7	41.8	98.2	69
					59.4	55.7	57.9			1	3	9.72	10.74	0.905	53.0	32.3	98.0	72
	W. E. M.	73.7	59.2	66.5	59.4	55.7	57.9	1	40	1	31	11.88	13.50	0.880	66.2	40.3	98.0	56
					59.4	55.7	57.9			2	57	10.98	12.66	0.867	61.8	33.6	98.4	59
												11.34	12.12	0.935	60.2	32.7	98.3	52
												17.28	17.10	1.012	86.7	47.2	98.4	54
												12.72	13.32	0.955	66.5	38.8	98.4	70
												13.50	14.58	0.926	72.3	42.7	97.8	68
												15.48	17.04	0.908	84.1	49.6	97.7	68

An examination of Table 2 will disclose that both the CO_2 output and the O_2 consumed, increase with exposure to either higher or lower temperature than the normal atmospheric condition. The range of temperature employed in the experiments varied from about 55° to 130° effective temperature, but the table includes results only up to about 105° effective temperature. To obtain a fair sample it was found necessary that the subjects be exposed to the constant temperature conditions for a period of at least an hour before the respiration samples were taken. For temperatures higher than 105° effective temperature, the subjects of the experiments could not endure the condition an hour, and the results obtained at these higher temperatures were comparatively low. Apparently the human mechanism did not have enough time to adjust itself to the temperature environ-

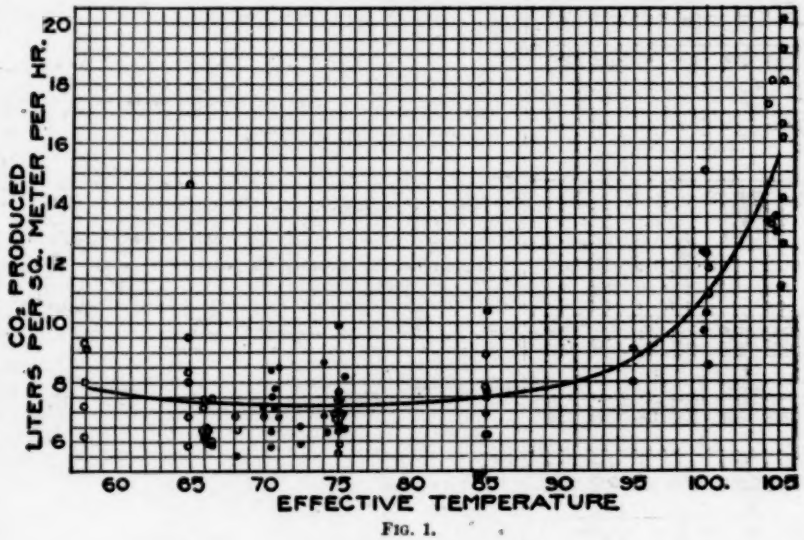

FIG. 1.

ment; and for this reason a number of samples that were taken after a short period of exposure were discarded. Figures 1 and 2 show, respectively, the variation of CO_2 produced and O_2 consumed, with effective temperature. To afford a uniform basis of comparison, these two quantities are expressed in liters per square meter of body surface per hour. Black circles represent observations made in the primary room, and the white or open circles those made in the secondary or test room. It will be observed that the graphs are very similar and have the same characteristics. They both attain a minimum value of 7.2 liters per square meter of body surface per hour, within a temperature zone between 70° and 85° effective temperature, where the rate of gaseous exchange is practically constant. Above and below this zone both quantities increase at an accelerated rate. At the normal temperature of 65° effective temperature the figures

show an average of 7.3 liters of CO_2 expired and 7.7 liters of O_2 consumed per square meter of body surface per hour. This corresponds to a respiratory quotient of 0.948.

It is of interest to note that the rate of gaseous exchange increases rapidly above 85° effective temperature, and to a still greater extent after the body temperature is passed.

The respiratory quotient in these experiments varied from about 0.84 to 1.55. Figure 3 shows the relation of this ratio to effective temperature as computed from the average values given in Figures 1 and 2. As the temperature increases, the respiratory quotient increases approximately at the same rate, until at about 80° effective temperature it becomes unity. In other words, the CO_2 produced becomes equal to the O_2 consumed in respiration. From 80° to about

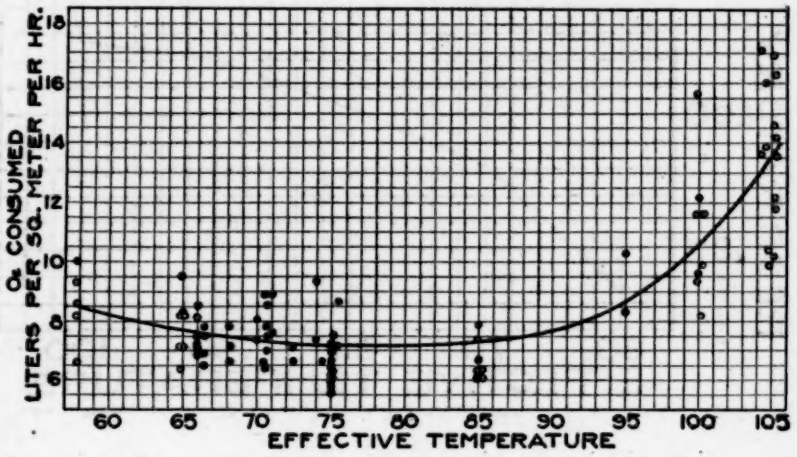

FIG. 2.

body temperature the variation in the respiratory quotient is rather small; but when the latter temperature is surpassed, a very sudden increase is apparent, according to the limited results available at these high temperatures. For this reason this portion of the curve is shown dotted.

Ordinarily the respiratory quotient recorded by various investigators, within the normal range of temperature conditions, seldom exceeds unity. The question now arises as to what effect high temperatures have upon the chemical changes within the body so as to raise the respiratory quotient over unity. Theoretical considerations suggest that free oxygen is available in the body through its liberation during the transformation of carbohydrates into fats. A study of the respiratory exchanges of animals which are rapidly laying on a store of fat at the expense of a carbohydrate diet indicates that oxygen is set free. Thus the marmot, toward the end of the summer, eats

large quantities of carbohydrate food, and very rapidly lays on a thick layer of subcutaneous fat to last it during the winter.

Starling [11] points out that in the formation of fat from carbohydrate a considerable loss of oxygen is incurred. For example, he states that if glucose were entirely oxidized in the body, the amount of O_2

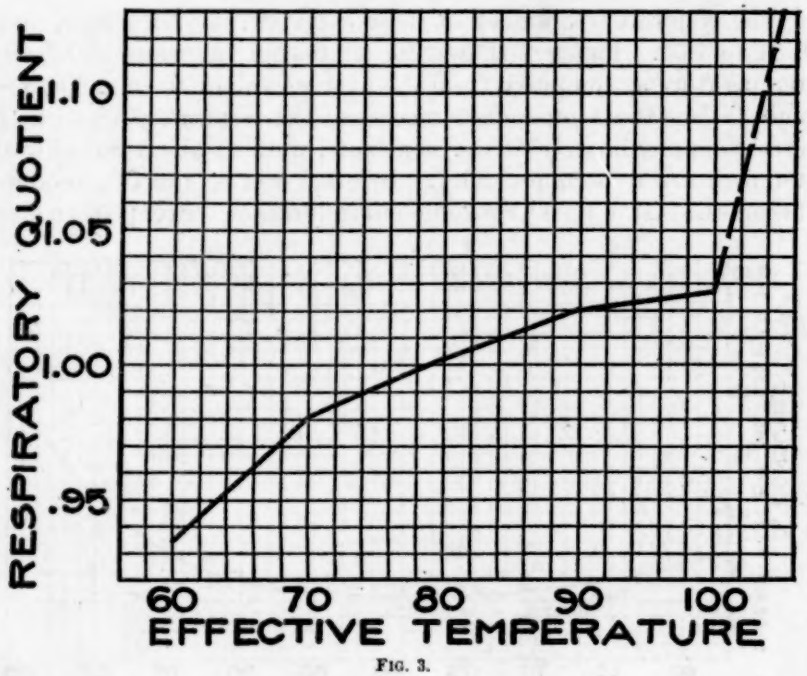

FIG. 3.

absorbed would be exactly equal to the amount of CO_2 involved. Thus

$$C_2H_{12}O_6 + 6O_2 \; 6\;CO_2 + 6H_2O.$$

In this case the respiratory quotient would be

$$\frac{6\;CO_2}{6\;O_2} = 1.$$

If, however, O_2 is being set free by the conversion of part of the carbohydrate into fat, this O_2 will be available for the oxidation of other portions of the carbohydrates. The animal will not require so much O_2 from external sources for the production of the same amount of CO_2, and therefore the CO_2 output of the animal will be greater than its O_2 intake. Starling states that Pambrey [12] has shown that under this condition the respiratory quotient may be as high as 1.50.

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[11] Starling, Ernest H.: Principles of Human Physiology, 3rd edition, 1920, section III, pp. 826-838.
[12] Work cited, p. 830.

Figure 4 shows the calories of heat produced within the body per square meter of body surface plotted against effective temperature.

The variation of this quantity with effective temperature is similar to that observed in Figures 1 and 2. At the normal temperature of 65° the average subject of the experiments developed 38.2 calories per square meter of body surface per hour. This value checks very closely with DuBois standard for basal metabolism—namely, 38.6 calories—but the curve shows that it is by no means the minimum metabolism.

It will be observed that there is a temperature zone of minimum metabolism, between 75° and 83° effective temperature, within which a lowest value of 36 calories per square meter per hour is

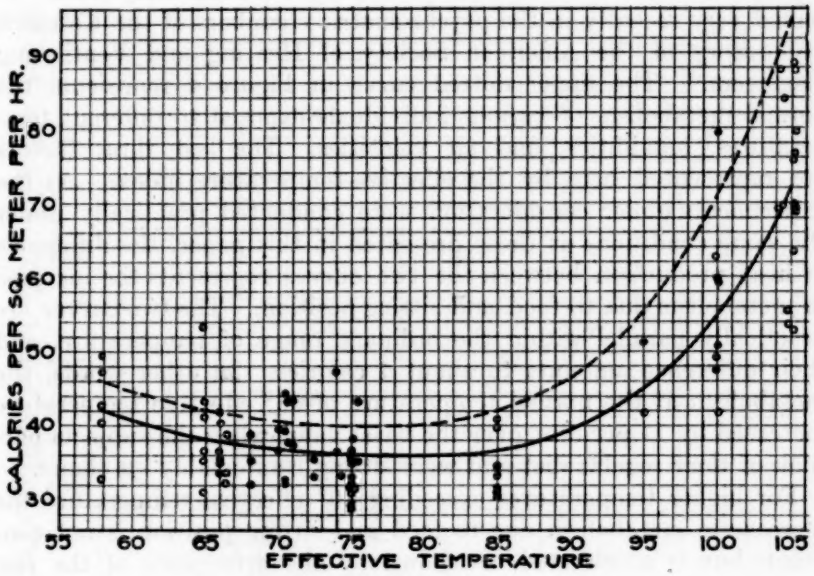


FIG. 4.

reached. It is the writers' belief that basal metabolism should be measured within this zone. The fact is substantiated from results of various other investigators who recorded values well below DuBois standard, depending upon the temperature in which the observations were made.

Apparently little importance has been attributed to the surrounding temperature conditions of the subjects of previous experiments, and this is one of the points the writers propose to emphasize through the evidence presented herein.

Attention is called to the range of successful operation of the body thermostatic control, which adjusts the heat production well within reasonable limits, according to the temperature of the environment. This is represented by the flat portion of the curve for ordinary

atmospheric conditions. Above 85° effective temperature, however, there is apparently a strain on the mechanism. The body makes strenuous efforts to resist rise in its temperature by promoting evaporation of perspiration from its surface, but the limit of action of the thermostatic control is reached, and the latter fails above 90° effective temperature. This is indicated by the rapid increase of heat production at the higher temperatures. At 105° effective temperature the heat production is twice as great as at the normal temperature of 65°.

A tendency for an increase in heat production is also shown below 65° effective temperature, which is necessary to keep the body warm in cold weather.

It is of interest to introduce here an analysis made by one of the writers, of the results of previous investigators, including those obtained very recently in the psychrometric chambers of the Research Laboratory of the American Society of Heating and Ventilating Engineers.[13] The upper dotted curve in Figure 4 represents the normal metabolism of various individuals exposed to different temperatures, humidities, and air velocities. The last three factors are represented here by the effective-temperature index. As the experiments under consideration were conducted practically under the same conditions as those presented in this paper, the difference in heat production between the two curves represents the increase in metabolism due to food and sitting position. The two curves are practically parallel within the ordinary range of temperature, and their difference amounts to about 4 calories. In other words, the metabolism at the normal temperature of 65° effective temperature increased by 11 per cent over the basal value when the subjects partook of their regular diet and were sitting comfortably on chairs.

For higher temperatures exceeding 80° effective temperature the increase in metabolism due to food and sitting position is not constant, but is accelerated, as shown by the divergence of the two curves. The reason for this may probably be due to the fact that in one case the basal metabolism is at the expense of substances in store within the body, while in the other case there is additional material in the form of food available for chemical transformation.

An examination of Table 2 will show that wherever more than one sample was taken in the test chamber the heat production invariably increased with the time of exposure. This is to be expected when considering that the physiological reactions vary with temperature and time of exposure. Accordingly, an attempt was made to correlate the rate of metabolism to rectal temperature and pulse rate in Figures 5 and 6, respectively.

[13] Yaglogiou, C. P.: The Heat given up by the Human Body and its Effect on Heating and Ventilating Problems. Jour. Amer. Soc. Heat. & Vent. Engrs., vol. 30, No. 8, Aug., 1924, pp. 597-609.

Figure 5 shows that heat production is minimum at a body temperature of about 98.4° F., and that it increases both above and below this temperature. It stands to reason that metabolism should increase when there is a drop in body temperature to keep the body warm. The increase for the higher temperatures is attributed to the warming up of the cells, and the marked rapid increase for temperatures above 100° is apparently due to the breaking down of the human thermostatic control.

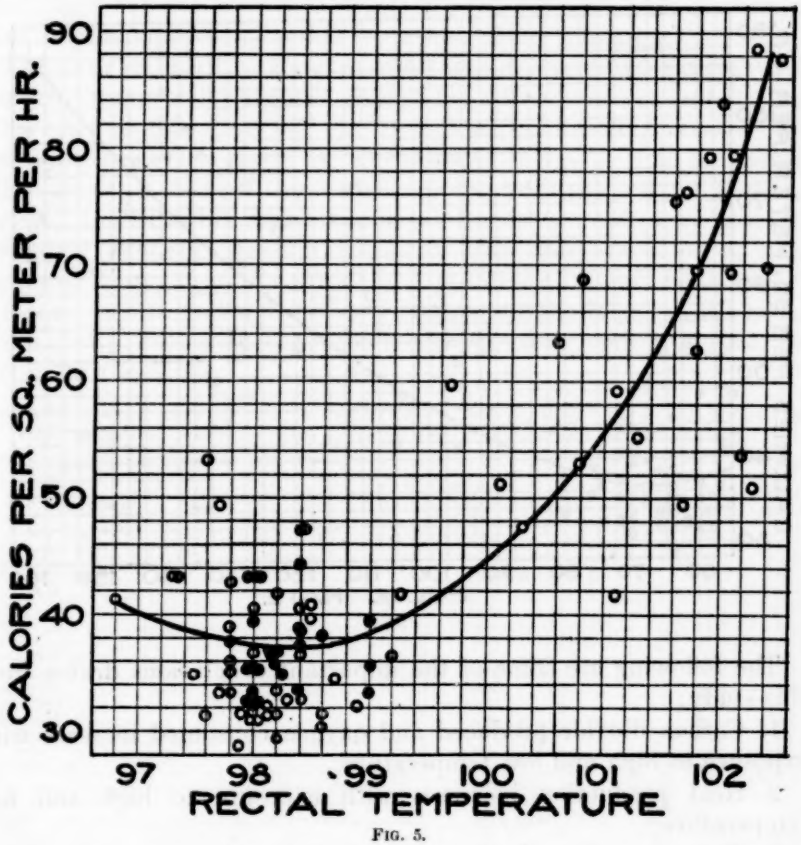


FIG. 5.

Similarly in Figure 6 we find that the heat production attains a minimum value of about the same magnitude as in the previous figure, namely, 37.0 calories per square meter per hour, at a pulse rate of 68 beats per minute. Metabolism again increases with higher or lower pulse rates, but the rate of increase is not as great as it is with change in temperature. A comparison of the two figures shows that the pulse cruve is much flatter than that for temperature, indicating that pulse rate is a more dependable index of the metabolic rate.

SUMMARY.

In summarizing the results of these experiments the writers wish to emphasize the significance of the dry- and wet-bulb temperature, and velocity of air, if any. These three factors should be combined into one index, called "effective temperature," which is determined from the above three readings, using an effective-temperature chart or table. The problem is thus greatly simplified and the effect of various other factors can be studied independently of temperature.

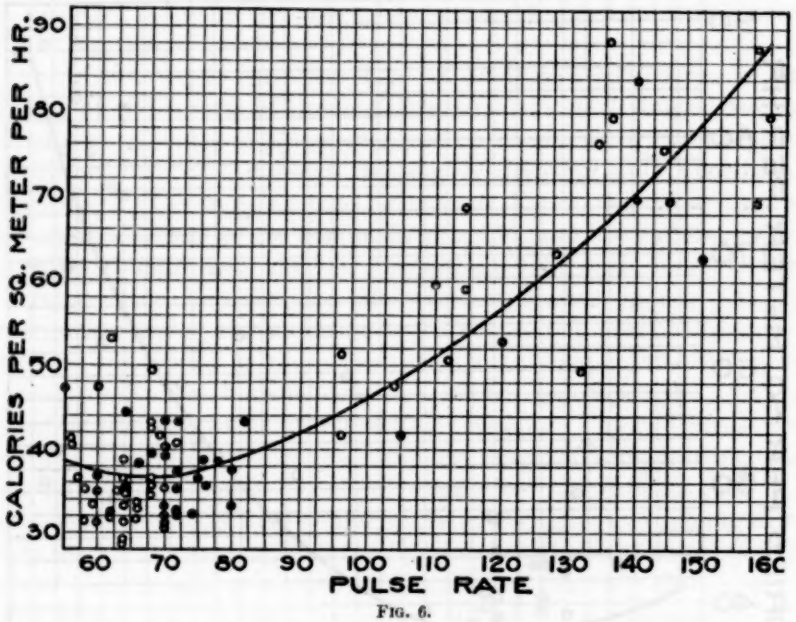


FIG. 6.

The following are some of the important conclusions drawn from this study:

1. Carbon dioxide produced and oxygen consumed increase with exposure to high and low temperature.

2. Heat production increases with exposure to high and low temperature.

3. There is a zone of minimum metabolism between 75° and 83° effective temperatures within which basal metabolism should be measured.

4. The metabolic rate becomes excessive when the temperature of the environment exceeds the body temperature.

CURRENT WORLD PREVALENCE OF DISEASE.

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT FOR OCTOBER 15, 1924, ISSUED BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT.

By EDGAR SYDENSTRICKER, Statistician, United States Public Health Service.

The most encouraging feature of the Monthly Epidemiological Report of the Health Section, League of Nations' Secretariat, for October 15, 1924, is the fact that there is no indication of a pandemic condition. On the contrary, a comprehensive summarization of reports on disease prevalence from practically all parts of the world where such reports are available, show more favorable health conditions than have been indicated for a good many years past.

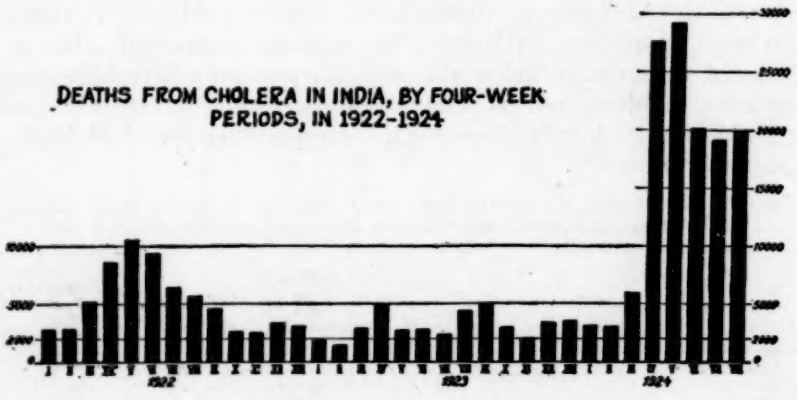
The data included in these monthly reports are almost altogether confined to morbidity records, except for a few countries and for the cities. A confirmation of the favorable condition indicated by morbidity reports is given by the statistics of deaths from all causes in the principal cities of the world. As has been pointed out in these reviews, the Monthly Epidemiological Report publishes by months the latest available death rates for a large number of cities well scattered throughout the world; and the generally favorable condition may be illustrated by simply comparing the latest death rates available for 1924 with those for a corresponding period of 1923, as is done in the table.

TABLE 1.—*Death rates in certain large cities of the world for the latest period in 1924 available, compared with those for the corresponding period of 1923.*[1]

City.	Population (000 omitted).	Period, 1924.	Annual mortality rate per 1,000.	
			1923.	1924.
105 English cities	19,264	Sept. 14–20	9.8	9.1
London	4,564	do	10.2	8.9
Dublin	435	do	12.9	13.7
Paris	2,906	Sept. 1–10	12.1	9.8
Antwerp	300	July 20–26	10.0	6.9
Amsterdam	707	Sept. 1–6	6.5	7.4
Copenhagen	574	do	7.6	9.3
Christiania	259	do	10.0	8.6
Stockholm	430	do	10.8	7.6
Gothenburg	228	Aug. 24–30	8.4	10.4
46 German cities	16,687	Sept. 1–6	11.3	9.7
Berlin	4,018	do	10.4	9.5
26 Swiss cities	1,098	do	10.9	11.5
Vienna	1,866	Aug. 3–9	11.0	11.4
Prague	697	July 13–26	12.1	11.6
Warsaw	956	Sept. 1–6	12.2	14.9
Dantzig	190	do	17.0	15.6
Budapest	952	Aug. 17–23	19.6	16.4
Milan	851	July 1–31	14.2	12.8
Leningrad	1,043	July 20–26		19.1
Alexandria	477	June 22–28	37.4	35.2
Cairo	804	do	61.8	46.9
Capetown	109	Aug. 10–16	14.6	10.5
Johannesburg	160	Aug. 24–30	10.9	9.1
Calcutta	896	Aug. 10–16	31.0	29.6
Bombay	1,240	do	29.7	33.0
Madras	527	do	29.9	43.6
65 cities in United States	27,000	Oct. 27–Nov. 1	11.7	12.0
New York	5,620	do	10.0	11.6
Rio de Janeiro	1,316	June 29–July 5	17.5	15.7
Perth	172	July 20–26	9.3	8.8

[1] Compiled from the Monthly Epidemiological Report of the Health Section of the Secretariat, League of Nations, Oct. 15, 1924, p. 658. The data for American, German, and Swiss cities include deaths of nonresidents; the data for British cities are adjusted to exclude, as far as possible, nonresidents and include residents dying outside the city.

It will be noted that in the majority of cities and groups of cities the death rate shows either no significant increase or a decrease, in some cases the decrease being quite marked. This is true especially of the 46 German cities, in which the 1923 death rate has been lower constantly during the present year, except for a short period in March, when it rose above the 1923 level because of an epidemic of influenza. The same is true of the English cities, except for the first four months of 1924, when an influenza epidemic of considerable proportions affected mortality unfavorably. In the larger cities of the United States the death rate generally has been lower in 1924 than in 1923. The weekly rates vary, of course, and too specific conclusions should not be drawn form the figures given above. The reader is referred to the current statistics as published in the Monthly Epidemiological Report for more complete information. At the same time it is quite evident that there is a tendency for the death rates for cities in all parts



of the world, with the exception of a very few, to be confined to rather narrow limits, taking the season of the year into account; these exceptions are Alexandria, Cairo, Calcutta, Bombay, and Madras, where the death rates are so much in excess of the rates in other cities that they are striking.

The improvement in the infant mortality rate in the German cities continues, the rate per thousand births for the four weeks ending September 6, 1924, being only 101 as compared with 167 for the corresponding period of 1923.

Plague.—The usual plague spots of the world are represented in the countries included in the October report, but for the most part the incidence of plague is at its minimum in all of the endemic centers. In India, the great epidemic center of disease, the "annual minimum was reached at the end of July, or a few weeks later than during the preceding years," the delay being due to the fact that the plague centered this year in the Punjab, where the seasonal curve is always about a month later than in the remainder of India. In the Dutch East

Indies the minimum incidence appears to have been passed in the middle of June, and by August 11 it had shown the usual increase.

Cholera.—Cholera in India this year has been very much in excess of what it was in the previous years. It apparently had reached its peak in May, but toward the end of July it began to increase again. The situation is shown by the accompanying diagram, which is reproduced from the Monthly Epidemiological Report. The increase is due principally to the rather severe epidemic in Bihar and Orissa and, to a less extent, in the Madras Presidency. It is also noted that several hundred cases are reported from the Punjab, which is usually free from cholera. Various localities in Indo-China, Siam, and the Philippine Islands report cases, all of which appear to have occurred during June and July.

Typhus and relapsing fever.—It is pointed out that "the typhus situation in general has been far more favorable [in 1924] than during any year since the war." It has now reached its annual minimum incidence in all the countries where it has been prevalent. The following summarization for the period January to August, 1924, is taken from the Monthly Epidemiological Report:

TABLE 2.—*Cases of typhus notified in various countries, January—August, 1924.*

Country.	January.	February.	March.	April.	May.	June.	July.	August.
Russia [1]	11,645	11,124	13,524	11,110	8,730	5,844	.....	.....
Esthonia	0	0	11	23	9	5	2	0
Latvia	35	13	81	39	43	26	9	.....
Lithuania	53	83	218	88	93	21	24	.....
Poland [2]	719	1,016	1,302	1,260	1,150	651	364	246
Rumania	357	588	612	622	535	192	.....	.....
Hungary	15	27	39	90	38	12	0	0
Bulgaria	17	25	36	43	54	16	3	.....
Spain [3]	2	1	0	3	2	2	3	.....
Egypt [2]	80	60	151	276	283	247	134	102
Algeria	39	89	102	90	70	44	18	17
Tunis	13	5	34	79	24	14	9	3
Union of South Africa	199	215	121	136	87	74	92	.....
Mexico City	50	41	40	25	45	32	.....	.....

[1] Without Ukraine. [2] Four-week periods. [3] Deaths only.

Smallpox.—"The smallpox situation is, for the time being, decidedly favorable," states the Report, which adds: "Northern Europe, including Scotland and Ireland, as well as the Baltic Republics, and central Europe as far south as Rumania, are quite free from smallpox, and it is declining rapidly nearly everywhere else where it has been prevalent." It is also interesting to note that the incidence of the disease is low in all the African countries bordering on the Mediterranean, and that a similar and marked decline from May to July is indicated by the data for the Union of South Africa and Basutoland. In India the disease has continued to decline and apparently is not above the level of the preceding year. Even in the Far East the prevalence of the disease is apparently favorable, a decline being

indicated in Japan and Korea. An increase, however, is reported in Java, particularly in the Province of Madura.

Enteric fever and dysentery.—Typhoid and the paratyphoid fevers, which are included under the general term "enteric," appear to have been more prevalent in 1924 than in 1923 in many countries, and it is noted that the pre-war decline has not been continued in the years since the war in these countries.

The excess over last year appears to be especially marked in the Baltic region, where ordinarily the disease is not extremely prevalent. In Germany the incidence is higher than in 1923, which in turn had shown an increase over 1922. Even in Japan a high incidence is shown this year as compared with the previous year.

The July and August returns for dysentery show somewhat higher figures than for the previous months, but the relative increase from week to week did not indicate any danger of important epidemics in any country for which reports are available.

Influenza.—No epidemic conditions are indicated in the Northern Hemisphere, and in the Southern Hemisphere there is an absence of the disease everywhere except in the Union of South Africa, where a mild epidemic occurred in August, and in Mauritius where, in July, 2,570 cases and 196 deaths were recorded.

Diseases of the central nervous system.—New cases of lethargic encephalitis continue to be reported in England and Wales, 182 being notified during the four weeks ending September 27 as against 237 during the preceding four weeks. In Sweden 22 cases were notified in August, and the reports from other countries indicate only sporadic cases.

Acute poliomyelitis does not appear to be prevalent in 1924. An interesting report is noted from Iceland, where an outbreak of the disease appeared in January and culminated in July. Up to the end of August, 176 cases with pronounced paralysis had been reported in this island, 65 of which were fatal. Abortive cases were stated to be very common, and the epidemic had spread over most of the island, but was most severe in the northern and western regions. When it is recalled that the total population of Iceland is only 95,000 this epidemic is relatively a very severe one.

A special report on the bacteriological investigation of cerebrospinal meningitis cases notified in Prussia in 1923 and 1924 is summarized in this issue of the Monthly Epidemiological Report. It is shown that the meningococcus was proved in only 13 per cent of the spinal fluids examined for this purpose in Prussia in 1923. Of the 61 cases notified as cerebrospinal meningitis in Berlin in 1923, 59 were investigated and the diagnoses were confirmed in 47 cases. This investigation was undertaken to check up certain reports of the dis-

ease which were being received some months ago from Germany. A similar investigation, it is understood, is in progress in Denmark.

Other diseases.—Scarlet fever and diphtheria, which reached their minimum prevalence in the summer, have already shown signs of the usual seasonal increase in several countries. All of the important outbreaks of measles which occurred in Europe are definitely at an end, and the incidence of the disease everywhere is low. The only epidemics to be reported in recent months were those in Spain (where 658 deaths were registered in July), in Egypt, and Iraq.

The malaria situation in Russia, exclusive of the Ukraine, continues to be relatively favorable, the June reports showing a decline in the number of cases over May; in the Ukraine, however, the reported incidence is considerably higher than in 1923.

DIGEST OF CURRENT PUBLIC HEALTH COURT DECISION.

Maintenance of municipal garbage disposal plant within the limits of another municipality (Supreme Court of Ohio).—Where a municipality, in the exercise of powers specifically conferred upon it by law, acquired property for, and established and maintained, a garbage disposal plant outside its corporate limits, and subsequently the site of the disposal plant was embraced within the limits of another municipality, the latter municipality can not prevent the maintenance, improvement, enlargement, and rebuilding of the garbage disposal plant where the improved and enlarged plant would employ the most efficient methods known for the elimination of offensive gases, odors, and liquids in the process of reduction. (Hecker, Inspector of Buildings, *v.* State ex rel. City of Cleveland, 144 N. E. 700.)

DEATHS DURING WEEK ENDED NOVEMBER 22, 1924.

Summary of information received by telegraph from industrial insurance companies for week ended November 22, 1924, and corresponding week of 1923. (From the Weekly Health Index, November 25, 1924, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Nov. 22, 1924.	Corresponding week, 1923.
Policies in force	57, 785, 487	54, 110, 177
Number of death claims	10, 605	10, 126
Death claims per 1,000 policies in force, annual rate	9. 6	9. 8

Deaths from all causes in certain large cities of the United States during the week ended November 22, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (*From the Weekly Health Index, November 25, 1924, issued by the Bureau of the Census, Department of Commerce.*)

City.	Week ended Nov. 22, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Nov. 22, 1924. [2]
	Total deaths.	Death rate. [1]		Week ended Nov. 22, 1924.	Corresponding week, 1923.	
Total (64 cities)	6,350	12.3	[3] 12.0	774	[3] 678	
Akron	30			3	8	32
Albany [4]	38	16.7	17.3	3	3	68
Atlanta	66	15.1	22.2	5	11	
Baltimore [4]	215	14.3	14.3	27	25	80
Birmingham	64	16.6	11.7	12	7	
Boston	182	12.2	13.1	26	27	72
Bridgeport	33			7	7	112
Buffalo	131	12.5	13.3	23	21	97
Cambridge	24	11.2	12.6	2	4	35
Camden	35	14.4	13.4	8	3	131
Chicago [4]	600	10.6	9.9	69	75	64
Cincinnati	134	17.1	15.4	19	10	119
Cleveland	176	10.1	13.0	18	22	46
Columbus	76	14.9	12.6	5	1	47
Dallas	38	10.5	12.0	9	7	
Dayton	31	9.6	11.3	2	4	33
Denver	62			13	5	
Des Moines	30	10.8	10.0	3	0	
Detroit	210			30	35	56
Duluth	13	6.3	10.8	3	3	65
Erie	26			1	5	21
Fall River [4]	31	13.4	14.2	4	8	56
Flint	18			3	5	52
Fort Worth	12	4.2	8.3	1	1	
Grand Rapids	35	12.3	12.5	2	1	31
Houston	46			8	7	
Indianapolis	92	13.7	14.1	13	10	96
Jacksonville, Fla	24	12.2	13.6	4	2	
Jersey City	72	12.0	12.3	8	6	57
Kansas City, Kans	30	13.3	17.1	5	2	96
Kansas City, Mo	90	13.0	12.6	6	6	
Los Angeles	209	[2]		18	35	56
Louisville	65	13.1	16.3	6	4	56
Lowell	32	14.4	13.1	5	4	89
Lynn	21	10.6	9.1	3	1	76
Memphis	70	21.2	17.8	7	8	
Milwaukee	93	9.9	9.4	13	16	62
Minneapolis	106	13.2	8.9	10	8	54
Nashville [4]	27	11.4	14.5	0	3	
New Bedford	28	11.0	13.6	2	7	31
New Haven	48	14.2	11.8	7	0	92
New Orleans	134	17.1	18.7	18	16	
New York	1,380	12.0	11.0	168	148	68
Bronx Borough	156	9.3	7.6	5	10	18
Brooklyn Borough	457	10.9	9.8	65	54	69
Manhattan Borough	610	14.1	13.2	84	69	85
Queens Borough	121	11.4	10.4	10	13	50
Richmond Borough	36	14.4	16.4	4	2	73
Newark, N. J.	96	11.2	8.1	18	12	84
Norfolk	27	8.6	10.5	2	5	36
Oakland	41	8.7	11.3	5	4	63
Oklahoma City	17	8.5		3		
Omaha	56	14.0	14.5	9	7	96
Paterson	31	11.5	14.2	3	2	51
Philadelphia	444	11.9	12.4	54	46	69
Pittsburgh	194	16.2	12.6	17	26	58
Portland, Oreg.	62	11.6	12.2	5	3	52
Providence	72	15.4	10.3	15	2	122
Richmond	55	15.6	13.5	9	14	109
Rochester	69	11.1		4		32
St. Louis	194	12.4	13.0	18	16	
St. Paul	71	15.2	10.6	7	1	60
Salt Lake City [4]	29	11.8	14.9	3	5	60

[1] Annual rate per 1,000 population.

[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1923. Cities left blank are not in the registration area for births.

[3] Data for 62 cities.

[4] Deaths for week ended Friday, Nov. 21, 1924.

Deaths from all causes in certain large cities of the United States during the week ended November 22, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, November 25, 1924, issued by the Bureau of Census, Department of Commerce)—Continued.

City.	Week ended Nov. 22, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Nov. 22, 1924.
	Total deaths.	Death rate.		Week ended Nov. 22, 1924.	Corresponding week, 1923.	
San Antonio	62	16.9	13.3	13	6	----
San Francisco	140	13.3	13.6	15	11	91
Schenectady	22	11.4	7.4	3	2	89
Seattle	65	----	----	3	6	29
Somerville	16	8.3	7.9	0	1	0
Spokane	26	----	----	4	1	88
Springfield, Mass	37	13.0	9.4	4	3	68
Syracuse	43	11.9	11.9	4	5	50
Tacoma	11	5.6	10.3	2	1	48
Toledo	50	9.4	10.6	7	3	66
Trenton	45	18.1	19.6	5	4	83
Utica	25	12.4	10.6	3	4	65
Washington, D. C	126	13.5	13.3	18	11	104
Waterbury	21	----	----	3	5	70
Wilmington, Del	24	10.4	12.0	4	3	89
Yonkers	17	8.1	9.2	2	2	44
Youngstown	31	10.4	10.1	6	5	83

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT WEEKLY STATE REPORTS.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended November 29, 1924.

ALABAMA.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	47
Diphtheria	30
Dysentery	4
Influenza	83
Malaria	20
Measles	21
Mumps	46
Ophthalmia neonatorum	1
Pellagra	6
Pneumonia	79
Scarlet fever	25
Smallpox	86
Tuberculosis	31
Typhoid fever	16
Whooping cough	12

ARKANSAS.

Chicken pox	28
Diphtheria	5
Hookworm disease	2
Influenza	47
Malaria	38
Measles	8
Mumps	3
Pellagra	2
Scarlet fever	7
Smallpox	21
Trachoma	3
Tuberculosis	5
Typhoid fever	15
Whooping cough	6

CALIFORNIA.

Cerebrospinal meningitis:	
Fresno	1
Glendale	1
Los Angeles	1

CALIFORNIA—continued.

	Cases.
Diphtheria	193
Influenza	23
Leprosy: San Francisco	1
Lethargic encephalitis:	
Glendale	1
Los Angeles	3
Measles	24
Poliomyelitis:	
Alameda	2
Benicia	1
Berkeley	1
Contra Costa County	5
San Francisco	3
Scarlet fever	144
Smallpox:	
Gridley	11
Los Angeles	34
Scattering	28
Typhoid fever:	
Stockton	10
Scattering	11

COLORADO.

(Exclusive of Denver.)

Cerebrospinal meningitis	1
Chicken pox	63
Diphtheria	15
Influenza	1
Measles	3
Mumps	12
Pneumonia	5
Scarlet fever	27
Smallpox	1
Tuberculosis	13
Typhoid fever	4
Whooping cough	8

CONNECTICUT.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	50
Conjunctivitis (infectious)	4
Diphtheria	53
German measles	8
Influenza	7
Lethargic encephalitis	2
Measles	3
Mumps	10
Ophthalmia neonatorum	1
Pneumonia (lobar)	28
Scarlet fever	109
Tuberculosis (pulmonary)	14
Typhoid fever	9
Whooping cough	54

DELAWARE.

Chicken pox	2
Diphtheria	4
Measles	1
Mumps	1
Pneumonia	1
Scarlet fever	4
Tuberculosis	2

FLORIDA.

Diphtheria	35
Influenza	5
Lethargic encephalitis	1
Malaria	40
Paratyphoid fever	1
Pneumonia	32
Scarlet fever	1
Typhoid fever	24

GEORGIA.

Chicken pox	20
Diphtheria	13
Dysentery (amebic)	1
Hookworm disease	4
Influenza	1
Malaria	4
Measles	1
Mumps	7
Pneumonia	2
Scarlet fever	13
Septic sore throat	1
Smallpox	4
Tuberculosis	8
Typhoid fever	8
Whooping cough	3

ILLINOIS.

Cerebrospinal meningitis:	
Adams County	1
Johnson County	1
Stephenson County	1
Diphtheria:	
Cook County	97
Sangamon County	8
Scattering	53
Influenza	22
Lethargic encephalitis—Tazewell County	1
Measles	101
Pneumonia	190

ILLINOIS—continued.

	Cases.
Poliomyelitis:	
Christian County	1
Cook County	4
Du Page County	1
Fulton County	1
Marshall County	1
Scarlet fever:	
Cook County	191
Greene County	8
Jackson County	11
Scattering	98
Smallpox	11
Tuberculosis	220
Typhoid fever	27
Whooping cough	282

IOWA.

Diphtheria	13
Poliomyelitis—Davenport	1
Scarlet fever	36
Smallpox	31

KANSAS.

Cerebrospinal meningitis	1
Chicken pox	134
Diphtheria	57
Influenza	1
Lethargic encephalitis	1
Measles	3
Mumps	81
Pneumonia	29
Scarlet fever	90
Smallpox	3
Trachoma	1
Tuberculosis	43
Typhoid fever	14
Whooping cough	11

LOUISIANA.

Diphtheria	29
Influenza	13
Malaria	6
Pneumonia	17
Scarlet fever	8
Smallpox	1
Tuberculosis	24
Typhoid fever	10
Whooping cough	10

MAINE.

Chicken pox	53
Diphtheria	12
Influenza	8
Measles	4
Mumps	49
Pneumonia	13
Poliomyelitis	4
Scarlet fever	22
Tetanus	1
Tuberculosis	3
Typhoid fever	4
Vincent's angina	2
Whooping cough	6

MARYLAND.[1]

	Cases.
Cerebrospinal meningitis	2
Chicken pox	59
Diphtheria	64
Dysentery	1
German measles	2
Influenza	42
Measles	36
Mumps	8
Pneumonia (all forms)	84
Poliomyelitis	1
Scarlet fever	54
Septic sore throat	3
Tetanus	1
Tuberculosis	69
Typhoid fever	12
Whooping cough	87

MASSACHUSETTS.

Cerebrospinal meningitis	2
Chicken pox	281
Conjunctivitis (suppurative)	17
Diphtheria	125
German measles	16
Influenza	17
Lethargic encephalitis	3
Measles	120
Mumps	109
Ophthalmia neonatorum	10
Pneumonia (lobar)	119
Poliomyelitis	2
Scarlet fever	261
Septic sore throat	2
Trachoma	2
Tuberculosis (all forms)	111
Typhoid fever	14
Whooping cough	74

MICHIGAN.

Diphtheria	125
Measles	115
Pneumonia	60
Scarlet fever	243
Smallpox	25
Tuberculosis	170
Typhoid fever	16
Whooping cough	60

MINNESOTA.

Chicken pox	205
Diphtheria	113
Influenza	1
Lethargic encephalitis	1
Measles	15
Pneumonia	2
Poliomyelitis	5
Scarlet fever	206
Smallpox	120
Trachoma	3
Tuberculosis	49
Typhoid fever	3
Whooping cough	28

MISSISSIPPI.

Cerebrospinal meningitis	1
Diphtheria	23
Scarlet fever	11
Smallpox	5
Typhoid fever	12

[1] Week ended Friday.

MISSOURI.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	56
Diphtheria	43
Influenza	5
Measles	2
Mumps	17
Ophthalmia neonatorum	1
Pneumonia	8
Poliomyelitis	2
Scarlet fever	218
Septic sore throat	4
Smallpox	12
Tuberculosis	16
Typhoid fever	7
Whooping cough	7

MONTANA.

Diphtheria	10
Scarlet fever	22
Smallpox	11
Typhoid fever	5

NEW JERSEY.

Cerebrospinal meningitis	3
Chicken pox	180
Diphtheria	84
Influenza	9
Measles	36
Paratyphoid fever	2
Pneumonia	114
Poliomyelitis	3
Scarlet fever	149
Smallpox	6
Typhoid fever	27
Whooping cough	64

NEW MEXICO.

Cerebrospinal meningitis	1
Chicken pox	16
Diphtheria	7
Influenza	2
Lethargic encephalitis	1
Measles	49
Pneumonia	17
Poliomyelitis	1
Scarlet fever	9
Smallpox	1
Tuberculosis	25
Typhoid fever	8

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis	4
Diphtheria	111
Influenza	20
Lethargic encephalitis	2
Measles	86
Pneumonia	177
Poliomyelitis	10
Scarlet fever	230
Smallpox	6
Typhoid fever	38
Whooping cough	250

NORTH CAROLINA.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	121
Diphtheria	92
German measles	6
Measles	26
Poliomyelitis	1
Scarlet fever	48
Smallpox	20
Typhoid fever	15
Whooping cough	65

OKLAHOMA.

(Exclusive of Oklahoma City and Tulsa.)

Diphtheria	17
Smallpox	1
Typhoid fever	20

OREGON.

Cerebrospinal meningitis	[1] 1
Chicken pox	29
Diphtheria:	
Portland	18
Lane County	8
Scattering	13
Influenza	2
Lethargic encephalitis	2
Measles	1
Mumps	3
Pneumonia	[1] 12
Poliomyelitis	2
Scarlet fever:	
Portland	8
Scattering	25
Smallpox	8
Tuberculosis	13
Typhoid fever	[1] 1

SOUTH DAKOTA.

Chicken pox	23
Diphtheria	2
Influenza	1
Measles	1
Mumps	2
Poliomyelitis	2
Scarlet fever	21
Smallpox	12
Whooping cough	3

TEXAS.

Chicken pox	56
Dengue	6
Diphtheria	42
Dysentery	3
Influenza	71
Mumps	24
Paratyphoid fever	2
Pellagra	2
Pneumonia	7
Poliomyelitis	1
Scarlet fever	12
Smallpox	12
Trachoma	5
Tuberculosis	40
Typhoid fever	8
Whooping cough	4

[1] Deaths.

VERMONT.

	Cases.
Chicken pox	57
Diphtheria	8
Measles	13
Mumps	13
Scarlet fever	19
Whooping cough	56

VIRGINIA.

Cerebrospinal meningitis—Buckingham County	2

WASHINGTON.

Chicken pox	52
Diphtheria	19
Measles	9
Mumps	15
Poliomyelitis:	
Kitsap County	2
Snohomish County	3
Everett	1
Seattle	2
Spokane	1
Scarlet fever	31
Smallpox	14
Tuberculosis	19
Typhoid fever	4
Whooping cough	5

WEST VIRGINIA.

Diphtheria	19
Scarlet fever	19
Smallpox	3
Typhoid fever	4

WISCONSIN.

Milwaukee:	
Chicken pox	72
Diphtheria	11
German measles	36
Measles	38
Mumps	15
Pneumonia	4
Scarlet fever	10
Tuberculosis	7
Typhoid fever	1
Whooping cough	17
Scattering:	
Cerebrospinal meningitis	3
Chicken pox	268
Diphtheria	43
German measles	1
Influenza	7
Lethargic encephalitis	1
Measles	19
Mumps	62
Ophthalmia neonatorum	1
Pneumonia	11
Poliomyelitis	3
Scarlet fever	128
Smallpox	18
Trachoma	1
Tuberculosis	23
Typhoid fever	4
Whooping cough	107

Reports for Week Ended November 22, 1924.

DISTRICT OF COLUMBIA.

	Cases.
Chicken pox	34
Diphtheria	7
Influenza	1
Lethargic encephalitis	1
Poliomyelitis	1
Scarlet fever	23
Tuberculosis	31
Typhoid fever	3
Whooping cough	3

NEBRASKA.

	Cases.
Chicken pox	43
Diphtheria	25
Influenza	3
Measles	2
Mumps	1
Pneumonia	1
Scarlet fever	43
Smallpox	9
Whooping cough	1

NEBRASKA—continued.

NORTH DAKOTA.

	Cases.
Cerebrospinal meningitis	2
Chicken pox	43
Diphtheria	5
German measles	4
Lethargic encephalitis	1
Measles	13
Mumps	1
Pneumonia	8
Poliomyelitis	6
Scarlet fever	37
Smallpox	15
Trachoma	2
Tuberculosis	6
Typhoid fever	2
Whooping cough	18

SUMMARY OF MONTHLY REPORTS FROM STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
October, 1924.										
Delaware		9			1			28		10
Iowa		94			1		8	130	64	3
Kansas	2	408	13	1	12	0	2	380	7	61
Maine	1	37	1		10	1	38	94	1	45
Michigan		504	4	1	324		159	833	56	94
Mississippi	1	205	1,100	7,126	98	344	4	64	36	297
Montana	2	56	1		7		38	87	38	22
Oregon		203	3	2	8		37	107	29	26
South Dakota	1	39			4		12	164	31	25
Washington	1	160	0	0	23	0	205	163	71	67

SMALLPOX IN FRESNO, CALIF.

Under date of November 21, 1924, an outbreak of smallpox was reported at Fresno, Calif., to which date 150 cases and 17 deaths had occurred.

PLAGUE IN LOS ANGELES, CALIF.

No new case of plague was reported in Los Angeles, Calif., during the week ended November 22, 1924. To that date 26 plague-infected rats had been reported.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES.

Diphtheria.—For the week ended November 15, 1924, 35 States reported 2,210 cases of diphtheria. For the week ended November 17, 1923, the same States reported 3,544 cases of this disease. One hundred and four cities, situated in all parts of the country and having an aggregate population of nearly 28,800,000, reported 1,110 cases of diphtheria for the week ended November 15, 1924. Last year, for the corresponding week, they reported 1,584 cases. The estimated expectancy for these cities was 1,553 cases of diphtheria. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty States reported 830 cases of measles for the week ended November 15, 1924, and 4,626 cases of this disease for the week ended November 17, 1923. One hundred and four cities reported 322 cases of measles for the week this year, and 1,160 cases last year.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-five States—this year, 2,668 cases; last year, 3,059 cases. One hundred and four cities—this year, 1,094 cases; last year, 1,121 cases; estimated expectancy, 867 cases.

Smallpox.—For the week ended November 15, 1924, 35 States reported 587 cases of smallpox. Last year, for the corresponding week, they reported 526 cases. One hundred and four cities reported smallpox for the week as follows: 1924, 192 cases; 1923, 134 cases; estimated expectancy, 59 cases. These cities reported 9 deaths from smallpox for the week this year, 8 of which occurred at Minneapolis.

Typhoid fever.—Four hundred and six cases of typhoid fever were reported for the week ended November 15, 1924, by 34 States. For the corresponding week of 1923 the same States reported 386 cases. One hundred and four cities reported 106 cases of typhoid fever for the week this year, and 112 cases for the week last year. The estimated expectancy for these cities was 100 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia (combined) were reported for the week by 104 cities as follows: 1924, 717 deaths; 1923, 669 deaths.

City reports for week ended November 15, 1924.

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1915 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
NEW ENGLAND.										
Maine:										
Lewiston	3	2	0	0	0	1	0	0	0	0
Portland	14	2	1	0	0	1	17	2	1	1
New Hampshire:										
Concord	0	0	0	0	0	0	0	0	1	1
Manchester	----	4	1	0	0	0	----	0	2	44
Vermont:										
Barre	----	0	----	----	----	----	----	----	1	----
Burlington	6	1	0	0	0	0	0	2	1	0
Massachusetts:										
Boston	43	66	47	8	0	28	4	16	30	62
Fall River	2	5	3	1	0	0	0	2	1	4
Springfield	8	8	5	1	0	3	4	3	6	21
Worcester	27	7	5	0	0	1	0	4	9	10
Rhode Island:										
Pawtucket	1	2	3	0	0	0	0	1	1	5
Providence	0	15	6	0	0	3	0	2	7	10
Connecticut:										
Bridgeport	0	12	10	1	0	1	1	3	6	4
Hartford	2	11	2	0	0	1	0	1	6	2
New Haven	11	7	0	0	0	3	0	1	4	14
MIDDLE ATLANTIC.										
New York:										
Buffalo	33	30	10	0	0	27	3	10	16	15
New York	186	186	162	52	6	32	17	199	96	122
Rochester	14	14	1	0	0	5	16	3	8	25
Syracuse	10	16	10	0	0	0	1	2	12	4
New Jersey:										
Camden	5	5	4	0	0	0	0	3	1	12
Newark	30	21	5	9	0	21	5	10	13	20
Trenton	2	8	1	0	2	1	0	3	2	4
Pennsylvania:										
Philadelphia	87	82	86	----	6	22	21	37	46	76
Pittsburgh	12	41	28	----	3	27	23	26	22	52
Reading	6	6	5	0	0	0	7	1	2	0
Scranton	5	5	0	0	0	1	0	7	3	0
E. NORTH CENTRAL.										
Ohio:										
Cincinnati	14	27	27	0	0	1	2	8	14	21
Cleveland	102	52	37	0	1	1	4	22	28	30
Columbus	6	15	1	0	0	0	0	6	9	6
Toledo	25	21	16	0	0	4	0	5	14	8
Indiana:										
Fort Wayne	3	3	13	0	0	0	0	1	1	4
Indianapolis	65	28	5	0	0	1	6	7	12	5
South Bend	4	3	3	0	0	1	0	2	3	3
Terre Haute	0	4	0	0	0	0	0	0	2	6
Illinois:										
Chicago	168	199	80	7	3	50	16	37	118	109
Cicero	0	3	0	0	0	0	0	0	3	2
Springfield	3	3	8	1	1	0	0	1	2	0

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths, reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
E. NORTH CENTRAL—contd.										
Michigan:										
Detroit	80	88	51	0	0	6	16	24	65	42
Flint	10	16	1	0	0	1	2	0	11	10
Grand Rapids	8	9	4	0	0	1	0	1	8	11
Wisconsin:										
Madison	21	2	1	0	----	0	23	----	1	0
Milwaukee	72	33	16	0	0	31	17	6	30	7
Racine	0	2	0	0	0	0	2	0	5	6
Superior	1	2	0	0	0	0	0	1	1	0
W. NORTH CENTRAL.										
Minnesota:										
Duluth	27	6	0	0	0	0	0	0	4	19
Minneapolis	69	26	37	0	0	2	0	9	24	31
St. Paul	41	21	25	0	0	4	16	4	10	8
Iowa:										
Davenport	----	1	3	0	----	0	----	----	1	0
Des Moines	----	9	0	0	----	0	----	----	11	5
Sioux City	2	3	4	0	----	0	0	----	4	0
Waterloo	0	1	0	0	----	0	0	----	3	0
Missouri:										
Kansas City	12	18	11	0	0	2	1	13	9	25
St. Joseph	3	5	1	0	0	0	0	0	4	4
St. Louis	21	82	51	0	0	2	2	----	29	120
North Dakota:										
Fargo	13	1	0	0	0	0	0	0	2	1
Grand Forks	0	2	0	0	----	0	0	----	2	0
South Dakota:										
Aberdeen	7	----	0	0	----	0	0	----	----	0
Sioux Falls	1	1	1	0	0	0	0	0	2	0
Nebraska:										
Lincoln	4	2	4	0	0	0	2	0	1	1
Omaha	3	9	10	0	0	0	0	4	4	3
Kansas:										
Topeka	0	4	3	0	0	0	12	0	2	7
Wichita	5	10	4	0	0	0	1	2	4	2
SOUTH ATLANTIC.										
Delaware:										
Wilmington	----	3	3	0	0	0	----	2	3	5
Maryland:										
Baltimore	42	36	36	12	2	2	0	24	18	13
Cumberland	----	1	0	0	0	0	----	3	1	0
Frederick	0	1	0	0	0	0	0	0	1	1
District of Col.:										
Washington	12	26	15	1	1	0	0	8	15	13
Virginia:										
Lynchburg	2	2	7	0	0	0	13	1	0	0
Norfolk	13	6	3	0	0	0	13	5	2	3
Richmond	5	14	20	0	1	1	0	5	8	4
Roanoke	2	3	8	0	0	0	2	0	3	1
West Virginia:										
Charleston	13	5	1	0	0	0	8	3	2	2
Huntington	5	5	0	0	----	0	0	----	1	2
Wheeling	25	4	0	0	0	0	0	1	2	11
North Carolina:										
Raleigh	3	3	1	0	0	1	0	0	2	1
Wilmington	1	1	0	0	0	0	3	3	1	0
Winston-Salem	9	2	7	0	0	0	2	4	2	1
South Carolina:										
Charleston	0	4	1	0	0	0	0	3	1	1
Columbia	1	2	0	0	0	0	2	1	1	0
Greenville	0	2	1	0	0	0	0	0	1	0
Georgia:										
Atlanta	0	9	5	0	0	0	0	13	6	2
Brunswick	1	0	0	0	0	0	0	1	0	0
Savannah	0	4	1	0	0	0	1	3	1	0
Florida:										
St. Petersburg	0	0	0	0	0	0	0	2	0	0
Tampa	----	3	----	----	----	----	----	----	0	----

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	3	4	4	1	0	0	0	0	1	0
Lexington	1	4	3	0	0	0	0	2	1	1
Louisville	2	15	7	1	0	0	0	12	4	5
Tennessee:										
Memphis	6	12	9	0	1	0	5	12	4	3
Nashville	1	8	0	0	1	0	0	5	4	1
Alabama:										
Birmingham	2	8	4	7	2	0	0	12	5	4
Mobile	0	2	1	0	0	0	0	5	0	1
Montgomery	1	2	1	0	0	2	1	0	1	0
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	3	2	3	0	-------	1	4	-------	2	3
Little Rock	1	4	4	0	0	0	0	1	3	0
Louisiana:										
New Orleans	1	12	18	14	6	0	0	12	5	4
Shreveport	1	-------	2	0	0	0	0	9	-------	1
Oklahoma:										
Oklahoma	0	5	0	0	0	0	0	3	4	3
Tulsa	0	7	2	0	-------	0	0	-------	3	1
Texas:										
Dallas	13	16	17	0	0	0	0	5	4	4
Galveston	0	1	0	0	0	0	0	0	1	1
Houston	2	5	8	0	1	0	0	6	0	4
San Antonio	1	5	7	0	0	0	0	1	1	1
MOUNTAIN.										
Montana:										
Billings	15	1	1	0	0	0	0	1	1	0
Great Falls	2	2	1	0	0	1	0	0	1	5
Helena	-------	0	0	0	0	0	-------	0	0	0
Missoula	-------	0	7	0	0	0	-------	0	1	0
Idaho:										
Boise	6	1	1	0	0	0	0	0	1	1
Colorado:										
Denver	37	17	16	0	1	1	14	9	8	5
Pueblo	14	5	1	0	0	0	2	0	2	2
New Mexico:										
Albuquerque	1	1	2	0	0	0	0	1	0	0
Arizona:										
Phoenix	0	-------	0	0	0	0	0	0	-------	2
Utah:										
Salt Lake City	32	3	9	0	0	2	16	0	3	4
Nevada:										
Reno	0	0	0	0	0	0	0	0	0	3
PACIFIC.										
Washington:										
Seattle	47	6	12	0	-------	1	9	-------	7	3
Spokane	14	5	2	0	-------	13	0	-------	7	7
Tacoma	0	3	6	0	-------	0	2	-------	2	1
Oregon:										
Portland	29	5	20	0	0	0	0	4	7	8
California:										
Los Angeles	28	38	51	5	5	9	16	19	15	16
Sacramento	1	3	3	0	0	0	1	2	2	2
San Francisco	11	23	20	0	0	0	14	5	8	11

City reports for week ended November 15, 1924—Continued

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
NEW ENGLAND.										
Maine:										
Lewiston	33,790	0	0	0	1	1	0	0	0	12
Portland	73,129	0	0	0	0	1	1	0	1	14
New Hampshire:										
Concord	22,408	0	0	0	0	0	0	0	0	11
Manchester	81,383	0	0	0	0	1	0	0	----	12
Vermont:										
Barre	[1] 10,008	0	----	----	----	0	----	----	----	----
Burlington	23,613	0	0	0	0	0	0	0	3	3
Massachusetts:										
Boston	770,400	0	0	0	12	2	0	0	13	236
Fall River	120,912	0	0	0	2	2	1	0	4	22
Springfield	144,227	0	0	0	2	0	0	0	1	28
Worcester	191,927	0	0	0	4	0	0	0	0	55
Rhode Island:										
Pawtucket	68,799	0	0	0	0	0	0	0	0	17
Providence	242,378	0	0	0	4	0	1	0	3	55
Connecticut:										
Bridgeport	[1] 143,555	0	0	0	1	1	0	0	0	26
Hartford	[1] 138,036	0	0	0	1	0	1	0	2	25
New Haven	172,967	0	0	0	2	1	1	0	22	33
MIDDLE ATLANTIC.										
New York:										
Buffalo	536,718	1	0	0	9	1	2	0	26	124
New York	5,927,625	0	0	0	[2] 79	20	21	2	137	1,205
Rochester	317,867	0	0	0	3	1	0	0	9	70
Syracuse	184,511	0	0	0	0	1	0	0	1	39
New Jersey:										
Camden	124,157	0	0	0	1	1	1	0	2	38
Newark	438,699	0	0	0	5	2	0	0	51	106
Trenton	127,390	0	0	0	2	1	0	0	8	28
Pennsylvania:										
Philadelphia	1,922,788	0	0	0	44	6	6	2	94	475
Pittsburgh	613,442	0	0	0	6	2	3	1	13	144
Reading	110,917	0	0	0	0	1	0	0	5	27
Scranton	140,636	0	0	0	0	0	1	0	3	----
EAST NORTH CENTRAL.										
Ohio:										
Cincinnati	406,312	0	0	0	7	1	2	0	8	107
Cleveland	888,519	2	0	0	11	3	1	0	31	159
Columbus	261,082	0	0	0	4	1	1	1	8	63
Toledo	268,338	1	2	0	3	1	0	0	17	48
Indiana:										
Fort Wayne	93,573	1	0	0	4	0	0	0	0	28
Indianapolis	342,718	1	5	0	6	1	0	1	1	103
South Bend	76,709	1	0	0	0	0	0	0	0	9
Terre Haute	68,939	0	1	0	2	0	0	0	0	18
Illinois:										
Chicago	2,886,121	1	0	0	43	6	3	1	111	602
Cicero	55,968	0	0	0	0	0	0	0	1	9
Springfield	61,833	1	0	0	1	0	0	0	0	20
Michigan:										
Detroit	995,668	2	3	0	21	4	3	1	25	237
Flint	117,968	0	2	0	3	1	0	0	0	23
Grand Rapids	145,947	1	0	0	1	0	0	0	2	30
Wisconsin:										
Madison	42,519	0	0	----	----	0	0	----	8	----
Milwaukee	484,595	2	0	0	2	0	1	1	20	83
Racine	64,393	0	0	0	1	0	0	0	2	10
Superior	[1] 39,671	1	0	0	0	0	0	1	0	13

[1] Population Jan. 1, 1920.

[2] Pulmonary only.

City reports for week ended November 15, 1924—Continued

Division, State, and city	Population July 1, 1923, estimated	Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
		Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL.										
Minnesota:										
Duluth	106,289	1	0	0	0	0	1	0	0	10
Minneapolis	409,125	3	67	8	4	0	0	0	0	103
St. Paul	241,891	8	24	0	1	1	0	0	9	42
Iowa:										
Davenport	61,262	0	3	----	----	0	0	----	----	----
Des Moines	140,923	1	2	----	----	0	0	----	----	----
Sioux City	79,662	1	0	----	----	0	0	----	1	----
Waterloo	39,667	1	2	----	----	0	0	----	0	----
Missouri:										
Kansas City	351,819	2	0	0	9	1	2	0	0	103
St. Joseph	78,232	1	0	0	1	0	0	0	0	17
St. Louis	803,853	1	3	0	11	3	0	0	10	200
North Dakota:										
Fargo	24,841	0	0	0	0	0	0	0	0	2
Grand Forks	14,547	0	0	----	----	0	0	----	0	----
South Dakota:										
Aberdeen	15,829	----	0	----	----	----	0	----	0	----
Sioux Falls	29,206	1	0	0	0	0	0	0	0	7
Nebraska:										
Lincoln	58,761	1	0	0	1	0	0	0	5	18
Omaha	204,382	2	4	0	3	0	0	0	0	46
Kansas:										
Topeka	52,555	0	0	0	0	0	0	0	6	12
Wichita	79,261	1	0	0	1	0	0	0	16	25
SOUTH ATLANTIC.										
Delaware:										
Wilmington	117,728	0	0	0	1	1	1	0	----	17
Maryland:										
Baltimore	773,580	0	0	0	10	4	0	1	68	226
Cumberland	32,361	0	0	0	1	1	0	0	----	17
Frederick	11,301	0	0	0	0	0	0	0	0	1
District of Columbia:										
Washington	[1] 437,571	1	1	0	9	2	0	0	13	111
Virginia:										
Lynchburg	30,277	0	0	0	0	0	0	0	2	8
Norfolk	159,089	0	0	0	0	1	0	0	0	----
Richmond	181,044	0	0	0	7	1	0	3	0	61
Roanoke	55,502	0	0	0	1	1	2	0	0	10
West Virginia:										
Charleston	45,597	0	0	0	3	0	0	0	3	13
Huntington	57,918	0	2	----	----	1	0	----	0	----
Wheeling	[1] 56,208	0	0	0	0	0	1	0	0	16
North Carolina:										
Raleigh	29,171	0	0	0	0	0	0	0	3	7
Wilmington	35,719	0	1	0	1	1	1	0	1	9
Winston-Salem	56,230	0	3	0	0	1	2	0	1	19
South Carolina:										
Charleston	71,245	1	0	0	1	1	0	0	0	23
Columbia	39,688	0	0	0	1	0	0	0	6	18
Greenville	25,789	0	2	0	0	0	1	0	2	4
Georgia:										
Atlanta	222,963	1	0	0	6	1	2	1	0	63
Brunswick	15,937	0	0	0	0	0	0	0	0	1
Savannah	89,448	0	0	0	0	1	0	0	0	26
Florida:										
St. Petersburg	24,403	0	0	0	0	0	0	1	0	12
Tampa	56,050	0	----	----	----	0	----	----	----	----
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	57,877	0	0	0	1	0	0	0	0	16
Lexington	43,673	0	0	0	2	0	1	0	0	17
Louisville	257,671	0	1	0	6	2	3	0	1	84

[1] Population Jan. 1, 1920.

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
EAST SOUTH CENTRAL—continued.										
Tennessee:										
Memphis	170,067	0	0	0	4	2	11	1	0	78
Nashville	121,128	0	0	0	3	1	3	0	0	42
Alabama:										
Birmingham	195,901	0	11	0	5	1	1	0	2	72
Mobile	63,858	0	0	0	0	0	2	0	0	18
Montgomery	45,383	0	0	0	0	0	0	0	0	14
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	30,635	0	0	------	------	1	0	------	3	------
Little Rock	70,916	0	0	0	1	1	2	1	0	------
Louisiana:										
New Orleans	404,575	1	0	0	9	3	5	1	0	126
Shreveport	54,590	------	0	0	1	------	1	0	0	32
Oklahoma:										
Oklahoma	101,150	0	0	0	1	1	0	0	0	19
Tulsa	102,018	0	0	------	------	1	2	------	0	------
Texas:										
Dallas	177,274	0	0	0	2	1	0	0	2	41
Galveston	46,877	0	0	0	1	0	3	0	0	15
Houston	154,970	0	8	0	2	0	0	0	0	48
San Antonio	184,727	0	0	0	7	0	0	0	0	42
MOUNTAIN.										
Montana:										
Billings	16,927	0	0	0	0	0	0	0	0	5
Great Falls	27,787	1	1	0	0	0	3	0	2	3
Helena	[1] 12,037	0	0	0	0	0	0	0	0	2
Missoula	[1] 12,668	0	5	0	0	0	0	0	------	5
Idaho:										
Boise	22,806	0	0	0	0	0	0	0	0	5
Colorado:										
Denver	272,031	5	0	0	15	1	2	0	3	83
Pueblo	43,519	1	0	0	0	0	0	0	0	7
New Mexico:										
Albuquerque	16,648	0	0	0	3	1	2	0	0	7
Arizona:										
Phoenix	33,899	------	0	0	5	------	0	0	0	21
Utah:										
Salt Lake City	126,241	2	1	0	3	0	3	1	1	29
Nevada:										
Reno	12,429	0	0	0	0	0	0	0	0	3
PACIFIC.										
Washington:										
Seattle	[1] 315,685	2	4	------	------	2	0	------	2	------
Spokane	104,573	7	1	------	------	1	1	------	3	------
Tacoma	101,731	0	1	------	------	0	1	------	0	------
Oregon:										
Portland	273,621	4	0	0	6	1	1	0	0	------
California:										
Los Angeles	666,853	1	29	0	27	3	4	1	15	221
Sacramento	69,950	0	10	1	1	0	0	0	0	17
San Francisco	539,038	0	2	0	10	1	0	0	3	132

[1] Population Jan. 1, 1920.

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Cerebro-spinal meningitis.		Lethargic encephalitis.		Pellagra.		Poliomyelitis (infantile paralysis).			Typhus fever.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases, est. expectancy.	Cases.	Deaths.	Cases.	Deaths.
NEW ENGLAND.											
Massachusetts:											
Boston	0	0	0	0	0	0	1	2	0	0	0
MIDDLE ATLANTIC.											
New York:											
New York	1	1	13	5	0	0	3	15	5	0	0
New Jersey:											
Newark	0	0	2	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL.											
Ohio:											
Cincinnati	0	0	1	0	0	0	0	0	0	0	0
Cleveland	1	0	0	0	0	0	1	1	0	0	0
Toledo	0	0	0	0	0	0	0	1	0	0	0
Indiana:											
South Bend	0	0	0	0	0	0	0	1	0	0	0
Illinois:											
Chicago	0	0	2	1	0	0	2	1	0	0	0
Cicero	1	1	0	0	0	0	0	0	0	0	0
Michigan:											
Detroit	1	0	0	0	0	0	0	8	2	0	0
Flint	0	0	0	0	0	0	0	1	0	0	0
Grand Rapids	0	0	0	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL.											
Minnesota:											
Minneapolis	0	0	0	0	0	0	0	1	0	0	0
St. Paul	0	0	1	0	0	0	0	3	0	0	0
Iowa:											
Davenport	0	0	0	0	0	0	0	1	0	0	0
Missouri:											
St. Louis	1	0	0	0	0	0	1	0	0	0	0
Kansas:											
Topeka	1	1	0	0	0	0	0	0	0	0	0
SOUTH ATLANTIC.											
West Virginia:											
Charleston	1	1	0	0	0	0	0	0	0	0	0
Huntington	0	0	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL.											
Alabama:											
Montgomery	0	0	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL.											
Arkansas:											
Little Rock	0	0	0	0	1	0	0	0	0	0	0
Louisiana:											
New Orleans	0	0	0	0	1	1	0	0	0	0	0
Texas:											
San Antonio	0	1	0	0	0	0	0	0	0	0	0
MOUNTAIN.											
Montana:											
Helena	0	0	0	0	0	0	0	1	0	0	0
Colorado:											
Denver	0	0	0	0	0	0	0	2	0	0	0
PACIFIC.											
Washington:											
Seattle	0	------	0	------	0	------	0	2	------	0	------
Oregon:											
Portland	0	0	2	0	0	0	0	1	0	0	0
California:											
Los Angeles	3	0	0	0	0	0	0	1	0	2	0
San Francisco	0	0	0	1	0	0	0	0	0	0	0

The following table gives a summary of the reports from 105 cities for the 10-week period ended November 15, 1924. The cities included in this table are those whose reports have been published for all 10 weeks in the Public Health Reports. Eight of these cities did not report deaths. The aggregate population of the cities reporting cases was estimated at nearly 29,000,000 on July 1, 1923, which is the latest date for which estimates are available. The cities reporting deaths had more than 28,000,000 population on that date. The number of cities included in each group and the aggregate population are shown in a separate table below.

Summary of weekly reports from cities, September 7 to November 15, 1924.

DIPHTHERIA CASES.

	1924, week ended—									
	Sept. 13	Sept. 20	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15
Total	521	643	779	757	883	936	988	965	1,128	1,113
New England	[1] 35	56	55	56	77	82	89	88	78	[1] 83
Middle Atlantic	139	177	255	198	209	259	228	235	304	312
East North Central	88	[2] 125	151	134	174	176	176	211	279	247
West North Central	91	90	92	116	126	136	149	127	128	147
South Atlantic	[3] 73	94	89	97	142	121	172	131	148	[4] 109
East South Central	7	13	22	20	28	42	41	27	35	26
West South Central	18	13	24	23	26	28	36	40	46	59
Mountain	12	15	18	24	14	18	23	28	38	36
Pacific	58	60	73	89	87	74	74	78	72	94

MEASLES CASES.

Total	102	94	104	134	130	193	197	241	310	322
New England	[1] 14	9	15	15	21	25	28	32	36	[1] 41
Middle Atlantic	40	36	38	65	56	97	92	112	144	135
East North Central	25	[2] 28	29	29	22	42	55	70	91	102
West North Central	4	2	7	9	5	7	3	7	7	10
South Atlantic	[3] 11	8	3	2	10	4	2	6	13	[4] 4
East South Central	1	0	2	1	2	1	0	0	2	2
West South Central	0	1	1	2	2	2	1	0	1	1
Mountain	4	0	3	2	0	5	2	3	2	4
Pacific	3	10	6	9	12	10	14	11	14	23

SCARLET FEVER CASES.

Total	359	455	586	570	774	795	938	1,021	1,153	1,099
New England	[1] 33	38	46	55	89	99	121	96	114	[1] 135
Middle Atlantic	48	97	128	129	154	168	213	298	354	330
East North Central	97	[2] 99	123	128	178	176	214	256	270	262
West North Central	104	142	172	148	218	227	253	216	225	220
South Atlantic	[3] 24	32	36	29	46	48	57	57	67	[4] 60
East South Central	6	14	17	13	21	11	14	24	29	14
West South Central	10	10	8	13	17	16	17	15	25	18
Mountain	10	9	16	18	15	19	13	19	19	20
Pacific	27	14	40	37	36	31	36	40	50	40

[1] Figures for Barre, Vt., estimated. Report not received at time of going to press.
[2] Figures for Superior, Wis., estimated.
[3] Figures for Wilmington, Del., and Tampa, Fla., estimated.
[4] Figures for Tampa, Fla., estimated.

Summary of weekly reports from cities, September 7 to November 15, 1924—Contd.

SMALLPOX CASES.

	1924, week ended—									
	Sept. 13	Sept. 20	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15
Total	64	86	84	86	72	99	134	134	138	192
New England	[1] 0	0	0	0	0	0	0	0	0	[1] 0
Middle Atlantic	2	3	6	8	3	0	5	2	4	0
East North Central	16	[2] 14	27	23	21	30	19	16	6	11
West North Central	11	23	19	15	21	27	64	70	82	100
South Atlantic	[2] 2	1	3	6	2	0	3	1	3	[4] 7
East South Central	3	8	5	6	2	15	11	9	8	12
West South Central	4	3	1	0	0	3	2	2	2	8
Mountain	0	2	1	1	0	2	3	0	1	7
Pacific	26	32	22	27	23	22	27	34	32	47

TYPHOID FEVER CASES.

Total	229	195	281	217	214	159	136	106	124	107
New England	[1] 9	12	11	9	16	8	6	5	7	[1] 5
Middle Atlantic	59	54	59	67	45	47	40	35	23	33
East North Central	31	[2] 25	39	25	15	17	14	11	14	11
West North Central	19	21	17	15	16	11	5	9	9	3
South Atlantic	[3] 47	32	50	35	23	20	22	13	21	[4] 10
East South Central	25	15	51	29	17	12	21	12	14	20
West South Central	15	15	17	7	15	12	12	6	18	11
Mountain	9	8	18	18	38	23	10	5	9	8
Pacific	15	13	19	12	9	9	6	10	9	6

INFLUENZA DEATHS.

Total	6	7	18	20	21	20	18	35	38	43
New England	[1] 0	1	1	0	1	1	1	1	5	[1] 0
Middle Atlantic	2	1	5	10	13	11	9	21	23	17
East North Central	3	[2] 0	2	4	4	3	5	5	5	5
West North Central	0	1	1	1	0	2	0	0	0	0
South Atlantic	[3] 1	1	3	1	1	1	2	3	3	[4] 4
East South Central	0	0	3	1	0	1	0	1	1	4
West South Central	0	3	1	1	1	1	0	3	1	7
Mountain	0	0	1	1	1	0	0	0	0	1
Pacific	0	0	1	1	0	0	1	1	0	5

PNEUMONIA DEATHS.

Total	306	308	372	438	494	497	479	593	636	676
New England	[1] 16	12	20	29	39	28	27	42	33	[1] 35
Middle Atlantic	120	125	152	178	217	221	227	270	305	294
East North Central	53	[2] 67	82	94	84	90	77	95	109	116
West North Central	23	22	18	16	25	23	20	28	29	32
South Atlantic	[3] 37	37	42	52	50	50	65	87	75	[4] 83
East South Central	15	9	14	22	15	19	13	21	24	46
West South Central	10	13	13	11	31	16	17	21	22	34
Mountain	10	8	11	11	15	22	16	6	8	10
Pacific	22	15	20	25	18	28	17	23	31	26

[1] Figures for Barre, Vt., estimated. Report not received at time of going to press.
[2] Figures for Superior, Wis., estimated.
[3] Figures for Wilmington, Del., and Tampa, Fla., estimated.
[4] Figures for Tampa, Fla., estimated.

Number of cities included in summary of weekly reports and aggregate population of cities in each group, estimated as of July 1, 1923.

Group of cities.	Number of cities reporting cases.	Number of cities reporting deaths.	Aggregate population of cities reporting cases.	Aggregate population of cities reporting deaths.
Total	105	97	28,898,350	28,140,934
New England	12	12	2,098,746	2,098,746
Middle Atlantic	10	10	10,304,114	10,304,114
East North Central	17	17	7,032,535	7,032,535
West North Central	14	11	2,515,330	2,381,454
South Atlantic	22	22	2,566,901	2,566,901
East South Central	7	7	911,885	911,885
West South Central	8	6	1,124,564	1,023,013
Mountain	9	9	546,445	546,445
Pacific	6	3	1,797,830	1,275,841

FOREIGN AND INSULAR.

CANARY ISLANDS.

Mortality—Las Palmas—July–September, 1924.

During the three-month period ended September 30, 1924, 451 deaths from all causes were notified at Las Palmas, Canary Islands. Of these, 287 were in children of four years or under, 134 deaths being stated to be from enteritis and diarrhea. Other causes of death were: Cancer, 20; meningitis, 22; tuberculosis, 32. Population, estimated, 66,461.

Plague—September, 1924.

During the month of September, 1924, two cases of plague were reported at Las Palmas.

MADAGASCAR.

Plague—Tananarive Province—September 1–15, 1914.

During the period September 1 to 15, 1924, 47 cases of plague with 42 deaths were reported in the Province of Tananarive, Madagascar.

PANAMA CANAL.

Communicable Diseases—October, 1924.

During the month of October, 1924, communicable diseases were reported in the Canal Zone, and at Colon and Panama, as follows:

Disease.	Canal Zone.	Colon.	Panama.	Non-resident.	Total.
Chicken pox	6	1	6		13
Diphtheria			5		5
Dysentery	1		2	2	5
Hookworm	8	5	33	25	71
Leprosy				1	1
Malaria	53	3	6	23	85
Measles	4	1	9		14
Meningitis			1		1
Mumps	8	1	1		10
Pneumonia		2	14		16
Poliomyelitis			1		1
Tuberculosis	4	6	15		25
Typhoid fever			1		1
Whooping cough	9	5	1		15

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended December 5, 1924.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	Sept. 28–Oct. 4	2		
Madras	Oct. 19–25	2	2	
Rangoon	Oct. 4–11	1	1	

PLAGUE.

British East Africa:				
Kenya	Oct. 4–10	5		
Tanganyika Territory	Sept. 28–Oct. 4		9	
Uganda	do	11		
Canary Islands:				
Las Palmas				September, 1924: Cases, 2.
Ceylon:				
Colombo	Oct. 12–18	2	1	
India:				
Karachi	Oct. 19–25	3	1	
Madras Presidency	Oct. 21–25	67	49	
Rangoon	Oct. 5–18	8	6	
Madagascar				Sept. 1–15, 1924: Cases, 47; deaths, 42.
Province—				
Tananarive	Sept. 1–15	47	42	

SMALLPOX.

British South Africa:				
Northern Rhodesia	Sept. 23–Oct. 6	13		
Canada:				
British Columbia—				
Fernie	Nov. 9–15	1		
Saskatchewan—				
Regina	Oct. 5–Nov. 11	3		
China:				
Antung	Oct. 13–19	7		
Egypt:				
Alexandria	Oct. 22–28		1	
Gibraltar	Oct. 27–Nov. 2		1	
Great Britain:				
England and Wales				Oct. 5–Nov. 1, 1924: Cases, 223.
London	Oct. 26–Nov. 1	1		
India:				
Bombay	Sept. 28–Oct. 4	4	4	
Madras	Oct. 18–25	16	4	
Rangoon	Oct. 5–18	8	3	
Indo-China:				
Saigon	Sept. 27–Oct. 4	2		Including 100 sq. km. of surrounding country.
Mexico:				
Vera Cruz	Nov. 2–16		8	
Portugal:				
Oporto	Oct. 26–Nov. 1		1	
Spain:				
Malaga	Oct. 19–Nov. 8		31	
Tunis:				
Tunis	Oct. 28–Nov. 3	6	5	

TYPHUS FEVER.

Argentina:				
Rosario	Sept. 1–30	1		
Ireland:				
Ballinasloe	Nov. 2–8	1		
Mexico:				
Mexico City	Nov. 2–8	15		

YELLOW FEVER.

British Honduras	Nov. 22			Prevalent in Stann Creek District near Belize.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Manchuria—				
Dairen	August, 1924	3		
Shanghai	Aug. 2–Sept. 6	1		
India				Apr. 20–June 28, 1924: Cases, 81,035; deaths, 56,740.
Do				June 29–Sept. 27, 1924: Cases, 98,405; deaths, 58,555.
Bombay	May 4–10	1		
Do	June 29–Sept. 20	46	23	
Calcutta	May 11–June 28	293	239	
Do	June 29–Sept. 27	182	150	
Madras	June 1–21	7	6	
Do	June 29–Oct. 11	47	26	
Rangoon	May 11–June 28	98	76	
Do	June 29–Aug. 23	24	22	
Indo-China				Jan. 1–June 30, 1924: Cases, 107; deaths, 52.
				July 1–31, 1924: Cases, 20; deaths, 10. Corresponding period 1923: Cases, 42; deaths, 30.
Province—				
Anam	June 1–30	4	1	
Do	July 1–31	3	1	
Cambodia	June 1–30	7	4	
Do	July 1–31	7	4	
Cochin-China	June 1–30	9	6	
Do	July 1–31	7	5	
Saigon	Apr. 27–June 28	6	4	Including 100 square kilometers of surrounding country.
Do	June 29–Sept. 13	8	5	Do.
Tonkin	June 1–30	9	4	
Do	July 1–31	3	1	
Persia:				
Bushire	June 1–30	1	1	
Philippine Islands				June 15–28, 1924: 32 cases, 22 deaths, including suspects. June 29–July 5, 1924: 5 cases, 4 deaths.
Manila	June 22–28	1		Suspect. Occurring in a non-resident.
Do	July 6–12	1	1	
Provinces—				
Batangas	July 1–12	4	3	
Bulacan	June 21	1	1	
Do	June 28–July 26	4	2	
Angat	July 20–26	1	1	
Malolos and Paombog.	July 13–19	2	1	
Cagayan	Mar. 30–Apr. 5	1	1	
Laguna	May 18–24	1	1	
San Pablo	July 13–19	1	1	
Pangasinan Lingayen	Oct. 3	1	1	
Rizal	July 3	1	1	
Santo Tomas	July 6–12	1	1	
Russia				Summer of 1924. Cases, 9.
Don Province				7 cases at Rostov and Nakhichevan.
Kuban				1 case, Black Sea district.
Moscow Province				1 case in Kolomensky Uyezd.
Rostov-on-Don	Aug. 5–7	3		
Siam:				
Bangkok	May 4–June 28	21	18	
Do	June 29–Oct. 4	12	6	
Straits Settlements:				
Penang	June 1–7	1	1	
Singapore	June 15–28	9	6	
Do	June 29–July 5	2	1	
On vessel:				
S. S. Argalia		1		At Bassein, Lower Burma, India. Case in European member of crew. Case removed to hospital. Vessel left May 16, 1924, arrived June 8 at Durban, South Africa; left Durban June 10 for Trinidad and Cuba

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Mostaganem	July 21–28	4		Seaport.
Argentina:				
Chaco Territory				April, 1924: Cases reported.
Azores:				
St. Michael's	Sept. 21–Oct. 4	4		Suburbs of city: Arrifes, one case; Faja de Cima, three cases.
Brazil:				
Porto Alegre	July 6–12		1	
British East Africa:				
Kenya—				
Kisumu	July 13–Sept. 20	2	1	
Tanganyika Territory	Feb. 24–June 7	1	2	
Do	June 26–July 3	3	2	
Uganda				May 1–June 30, 1924: Cases, 125; deaths, 107.
Entebbe	Feb. 1–Apr. 30	59	54	
Canary Islands:				
Las Palmas	Sept. 8	1		
Teneriffe—				
La Laguna	June 20	1		
Celebes:				
Macassar and Menando	July 27–Aug. 2			1 plague rat.
Ceylon:				
Colombo	May 11–June 28	11	7	10 plague rodents.
Do	June 29–Sept. 13	19	18	Plague-infected rodents, 17.
Chile:				
Antofagasta	June 1–16	4		
China:				
Amoy	June 15–28		4	
Do	June 29–Aug. 9		13	
Chungking	Oct. 5–11			Present.
Foochow	May 4–June 21		25	Cases not reported.
Nanking	July 20–Oct. 18			Present.
Ecuador:				
Eloy Alfaro	May 16–31	1		
Do	Sept. 16–30	1		
Guayaquil	May 16–June 30	5	1	Rats taken, 23,717; found infected, 107.
Do	July 1–Sept. 30	2		Rats taken, 44,489; found plague-infected, 188.
Posorja	July 1–15	1		
Puna	July 16–31	1		
Egypt				July 1–Sept. 5, 1924: Cases, 10. Total Jan. 1–Sept. 5, 1924—cases, 354; deaths, 177; corresponding period, preceding year—cases, 1,337.
City—				
Alexandria		1	1	First case, Apr. 2; last, Apr. 2.
Ismailia		1	1	First case, July 6; last, July 6.
Port Said		5	2	First case, Apr. 24; last, Aug. 26.
Suez		16	8	First case, Jan. 2; last, Sept. 23.
Province—				
Assiout		44	35	First case, Apr. 1; last, Aug. 27.
Behera		1	1	First case, Aug. 9; last, Aug. 9.
Beni-Suef		3	3	First case, June 21; last, June 21.
Charkieh		1	1	First case, Jan. 31; last, Jan. 31.
Fayoum		106	33	First case, Feb. 18; last, July 18.
Gharbia		3	2	First case, Apr. 21; last, Aug. 22.
Ghirga		10	3	First case, Jan. 17; last, May 13.
Kalioubiah		10	1	First case, Jan. 6; last, May 22.
Kena		44	26	First case, Apr. 9; last, May 17.
Menoufieh		49	32	First case, Jan. 2; last, June 28.
Minia		58	28	First case, Feb. 5; last, Aug. 1.
France				Aug. 1–31, 1924: Cases, 3.
Paris	Oct. 1–31	2		Bubonic, occurring in suburbs, St. Medard and St. Ouen.
Gold Coast				January–June, 1924: Cases, 173; deaths, 104. July–August, 1924: Cases, 142; deaths, 104.
Greece:				
Kalamata				Reported July 15, 1924: Cases, 29; deaths, 6.
Patras	July 7	36		
Saloniki	July 3–4	2		
Symi, Island of	Aug. 26	11	2	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Hawaii				July 15, 1924: Near Kukuihaele, Island of Hawaii, 1 plague rat.
Honokaa				Aug. 19–Sept. 10, 1924: 5 plague-infected rodents found in vicinity. In vicinity, at Paauhau sugar plantation, Oct. 11, 1924, 1 plague rat (trapped).
India				Apr. 20–June 28, 1924: Cases, 102,874; deaths, 84,656.
Do				June 29–Sept. 27, 1924: Cases, 8,247; deaths, 6,216.
Bombay	May 4–June 21	50	44	
Do	June 29–Aug. 30	20	16	
Calcutta	May 11–June 14	10	10	
Karachi	May 18–June 21	16	13	
Do	Aug. 17–Sept. 20	7	7	
Madras Presidency	May 18–31	7	2	
Do	Aug. 3–Oct. 18	299	193	
Rangoon	May 11–June 28	77	72	
Do	June 29–Oct. 4	219	187	
Indo-China				Jan. 1–June 30, 1924: Cases, 734; deaths, 486. July 1–31, 1924: Cases, 26; deaths, 22. Corresponding period, 1923: Cases, 34; deaths, 30.
Province—				
Anam	June 1–30	6	5	June, 1923: Cases, 11; deaths, 10.
Do	July 1–31	4	4	
Cambodia	June 1–30	18	18	June, 1923: Cases, 140; deaths, 121.
Do	July 1–31	9	9	
Cochin-China	June 1–30	4		June, 1923: Cases, 14; deaths, 10.
Do	July 1–31	13	9	
Saigon	May 4–June 28	10	2	Including 100 square kilometers of surrounding country.
Do	July 29–Aug. 9	3	1	Do.
Iraq:				
Bagdad	Apr. 20–June 28	125	62	
Do	June 29–Aug. 9	7	4	
Italy:				
Naples	Sept. 15	3	1	Including suburb of Portici, 1 case. On Sept. 12 a plague-infected rat was found in port of Naples.
Japan				July 1–31, 1924: 1 case, 1 death Jan.–July, 1924: Cases, 4; deaths, 3.
Shizuoka Prefecture—				
Higashi				To June 20, 1924: Cases, 2; death, 1.
Java:				
East Java—				
Soerabaya	June 8–21	14	14	
Do	Aug. 31–Sept. 6	1	1	
West Java—				
Batavia Residency				
Cheriboo	Aug. 19–Sept. 15	2	2	
Pekalongan Residency,				
Pekalongan	do		8	
Madagascar.				
Diego Suarez	June 22–Sept. 23	50	42	Seaport.
Fort Dauphin	Sept. 3–24	6	4	
Moramanga	June 1–30	1	1	Interior.
Tamatave	June 6–30	5	4	Bubonic.
Tananarive Province				Apr. 1–June 30, 1924: Cases, 138; deaths, 128; bubonic, pneumonic, septicemic. July 1–Aug. 31, 1924: Cases, 91, deaths, 88.
Tananarive Town	Apr. 1–June 30	12	12	
Do	July 1–Aug. 31	6	6	
Other localities	Apr. 1–May 31	105	97	
Do	July 1–Aug. 31	64	63	
Mauritius Island				Dec. 30, 1923–June 28, 1924: Cases, 35; deaths, 29. June 29–Sept. 6, 1924: Cases, 9; deaths, 8.
Morocco				Jan.–June, 1924: Cases, 53; deaths, 3.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Nigeria				July, 1924: Cases, 1; deaths, 1.
Palestine:				
Jaffa	Oct. 16	1		Bubonic.
Jerusalem	Oct. 14–20	1		
Persia:				
Abadan	May 1–31	20	12	
Bander Abbas	do	11	6	
Bushire	do	1	1	Landed at quarantine.
Mohammerah	do	111	78	
Peru				May 1–June 30, 1924: Cases, 9; deaths, 6.
Do				July 1–31, 1924: Cases, 6; deaths, 3.
Callao	June 1–30	1		
Do	July 1–31	2		
Huaral	June 1–30	1		
Do	July 1–31	1		
Lima (city)	May 1–June 30	5	5	
Do	July 1–31	3	2	
Lima (country)	May 1–June 30	1		
Do	July 1–31		1	
Mollendo	May 1–31	1	1	
Russia				Jan.–June, 1924: Cases, 252.
Don Cossack Territory—				
Salsky District				Aug. 8, 1924: Reported present in marmots in 6 localities.
Siam:				
Bangkok	May 4–June 14	3	3	
Do	July 13–Sept. 27	5	4	
Siberia:				
Transbaikalia—				
Dauria	Aug. 9	2	2	At Substation 83, vicinity of Dauria.
Harenor	Sept. 18			Bubonic and pneumonic. On line of Chinese and Trans-Siberian Railway. In workers in tarabagan (marmot), skins.
South Nigeria (West Africa):				
Lagos	Sept. 8			Present.
Syria:				
Beirut	July 10–Aug. 20	7		
Tunis:				
Tunis	Sept. 23–29	1	1	
Union of South Africa				Apr. 27–June 7, 1924: Cases, 28; deaths, 14. Dec. 16, 1923, to May 31, 1924: Cases, 347; deaths, 208 (white, 51 cases, 26 deaths; native, 269 cases, 182 deaths). July 1–Aug. 31, 1924: Cases, 5; deaths, 2.
Cape Province—				
Uitenhage District				Sept. 28–Oct. 4, 1924: Plague-infected mouse found on Haarhof's Kraal farm. Plague reported on this farm in September and October, 1924.
Orange Free State				May 11–June 14, 1924: Cases, 21; deaths, 9. June 22–28, 1924: Plague-infested mouse found in Kroonstad District.
Philippolis District	Aug. 24–30	1	1	
Smithfield District	July 13–19	2		In natives on two farms.
On vessel:				
S. S. Amboise	July 10	1		At Marseille, France; removed to quarantine station. Case occurred in an Arab fireman embarked at Aden. Vessel left Yokohama May 30 and Colombo, Ceylon, June 22, 1924.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden	July 20-26		1	
Bolivia:				
La Paz	May 1-June 30	10	9	
Do	July 1-Sept. 30	28	21	
Brazil:				
Bahia	May 18-24	1		
Porto Alegre	May 18-June 28	1	2	
Do	July 6-Aug. 2		3	
Rio de Janeiro	May 18-24	2		
Do	July 20-Aug. 30	5		
British East Africa:				
Kenya—				
Mombasa	May 4-31	3		
Tanganyika Territory	June 15-21	1		
Do	Aug. 17-23	1		
Uganda				
Entebbe	Feb. 1-29	2		
British South Africa:				
Northern Rhodesia	May 6-June 30	74	1	Natives.
Do	July 1-Sept. 22	56		
Canada:				
British Columbia	Sept. 12-Oct. 18	29		
Fernie	Nov. 2-8	1		
Vancouver	June 15-28	11		
Do	June 29-Nov. 1	59		Not including suburbs
Victoria	Aug. 3-9	1		
Manitoba—				
Winnipeg	July 13-Aug. 1	3		
New Brunswick—				
Restigouche County	June 1-30	7		
Do	July 6-Sept. 6	21		Year ended Oct. 31, 1924: Cases, 36; deaths, 1.
Westmoreland County	Aug. 17-23	1		
Ontario				June 1-30, 1924: Cases, 24; July 1-Oct. 25, 1924: Cases, 93. Corresponding period, 1923: Cases, 23.
Chatham Township	Sept. 28-Oct. 25	31		
Chatham	do	3		
Harwich Township	do	2		
Howard Township	do	14		
Macauley Township	do	1		
Sarnia	July 20-26	1		
Toronto	Sept. 28-Oct. 25	1		
Whitnet	do	21		Unorganized.
Windsor	June 22-28	1		
Quebec—				
Montreal	June 8-14	1		
Do	Sept. 14-20	1		
Ceylon:				
Colombo	July 6-12	1		
Chile:				
Antofagasta	June 11			Under treatment at lazaretto, 2 cases.
Do	Aug. 24-30	1		
Valparaiso	June 1-7		1	This report covers the two principal districts of Valparaiso.
China:				
Amoy	May 11-June 28			Present.
Do	June 29-Oct. 11		1	Do.
Antung	June 9-29	41	3	
Do	July 7-13	4		
Chungking	May 11-June 28			Do.
Do	June 29-Oct. 11			Do.
Foochow	May 18-June 28			Do.
Do	July 6-Oct. 11			Do.
Hongkong	May 4-June 28	30	24	
Do	June 29-July 12	3	3	
Manchuria—				
Darien	May 12-June 28	22	7	
Do	June 29-Aug. 23	5	1	
Harbin	May 13-June 23	2		
Nanking	May 18-June 28			Do.
Do	July 6-Oct. 11			Do.
Shanghai	May 25-31		1	
Tientsin	May 4-June 28	11	1	British municipality.
Chosen:				
Fusan	May 1-31	1		
Do	July 25-31	1		
Colombia:				
Barranquilla	Aug. 3-9		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Cuba:				
Matanzas	Sept. 1-30	1		
Czechoslovakia				Apr. 1-June 30, 1924: Cases, 7; deaths, 2.
State—				
Bohemia	Apr. 1-June 30	6	2	
Russinia	do	1		
Denmark:				
Copenhagen	May 18-31	3	1	
Dominican Republic:				
La Romana	Aug. 24-30	2		
Egypt:				
City—				
Alexandria	June 4-10	1		
Do	Sept. 3-Oct. 21	4		
Cairo	Feb. 19-June 24	163	45	
Do	June 25-Aug. 19	20	5	
Port Said	June 18-24	1	2	
Do	June 25-Sept. 9	4		
France:				
Limoges	Apr. 1-May 31		2	
Marseille	May 1-31		1	
Paris	May 21-31	2		
Gibraltar	July 21-Oct. 26	10		
Great Britain:				
England and Wales				May 25-June 28, 1924: Cases, 342; June 29-Oct. 4, 1924: Cases, 695.
Counties—				
Derby	May 25-June 28	159		
Do	June 29-Oct. 4	159		
Hull	Oct. 26-Nov. 1	2		
London	June 29-Aug. 30	3		
Northumberland	May 25-June 28	61		
Do	June 29-Oct. 4	134		
Nottingham	May 25-June 28	29		
Do	June 19-Oct. 4	103		
Yorks (North Riding).	May 25-June 28	54		
Do	June 29-Oct. 4	118		
Yorks (West Riding).	May 25-June 28	5		
Do	June 29-Oct. 4	44		
Liverpool	Aug. 28	1		Mild. Admitted to port hospital from Lower Bebington district. 2 miles from docks.
Greece:				
Athens	Sept. 21-30		2	
Saloniki	Apr. 21-June 29	7	21	
Do	June 30-Oct. 4		41	
Haiti:				
Port au Prince	July 6-12	2		Developed at Cape Haitien.
Hungary:				
Budapest	July 20-Aug. 2	11		
India				Apr. 20-June 28, 1924: Cases, 28,306; deaths, 6,753. June 29-Sept. 27, 1924: Cases, 12,284; deaths, 3,042.
Do				
Bombay	May 4-June 28	432	290	
Do	June 29-Sept. 27	203	130	
Calcutta	May 11-June 28	36	32	
Do	July 6-Sept. 27	78	63	
Karachi	May 18-June 28	51	18	
Do	June 29-Sept. 13	35	16	
Madras	May 18-June 28	32	10	
Do	June 29-Oct. 18	192	64	
Rangoon	May 11-June 28	53	21	
Do	June 29-Oct. 4	37	13	
Indo-China				Jan. 1-June 30, 1924: Cases, 4,934; deaths, 1,413. July 1-31, 1924: Cases, 119; deaths, 51. Corresponding period, 1923: Cases, 268; deaths, 108.
Province—				
Anam	June 1-30	23	2	June, 1923: Cases, 2.
Do	July 1-31	11	7	
Cambodia	June 1-30	35	21	June, 1923: Cases, 156.
Do	July 1-31	28	13	
Cochin-China	June 1-30	145	55	June, 1923: Cases, 70; deaths, 35.
Do	July 1-31	73	31	
Saigon	Apr. 27-June 28	145	79	Including 100 square kilometers of surrounding country.
Do	June 29-Sept. 27	68	27	Do.
Tonkin	June 1-30	31	2	
Do	July 1-31	7		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Iraq:				
Bagdad	Apr. 20–May 24	8	1	
Do	July 27–Aug. 2	1		
Italy:				
Messina	May 26–June 1	1		
Jamaica				June 1–28, 1924: Cases, 141; June 29–Oct. 25; 1924: Cases, 269. (Reported as alastrim.)
Kingston	June 1–28	6		Reported as alastrim.
Do	June 29–Oct. 25	27		Do.
Japan				July 1–31, 1924: Cases, 51; deaths, 9; Jan. 1–July 31, 1924: Cases, 1,693; deaths, 264.
Kobe	May 26–June 21	3		
Nagoya	June 8–14	2		
Tokyo	do	1		
Java:				
East Java—				
Madoera Residency—				
Sampang	May 22			Epidemic.
Malang	May 25–31	5	1	
Pasoeroean Residency	July 4–Sept. 2	7		Epidemic in some localities.
Rembang	Aug. 29–Sept. 2			Do.
Soerabaya	Apr. 13–June 28	501	143	
Do	June 29–Sept. 20	1,151	315	Epidemic Aug. 10, 1924, in 4 localities.
West Java—				
Batavia	May 31–June 27	3		
Do	July 6–Aug. 22	6		Province.
Brebes	Aug. 26–Sept. 15	4	1	
Cheribon	Aug. 19–25	1		
Pekalongan Province				Aug. 19–25, 1924: Cases, 12, deaths, 2.
Pekalongan	Aug. 19–Sept. 15	14	3	
Pemalang	Aug. 19–Sept. 1	5	7	
Tegal	Sept. 2–8	7		
Latvia				Apr. 1–June 30, 1924; Cases, 3; July 1–31, 1924; Case, 1.
Mexico:				
Cecilia	Oct. 11–17	5	1	State of Taumaulipas.
Durango	June 1–30		2	
Do	Sept. 1–Oct. 31		2	
Guadalajara	May 1–June 30	9	4	
Do	July 8–14		1	
Mexico City	May 4–June 28	96		Including municipalities in Federal District.
Do	June 29–Oct. 18	76		Do.
Progreso	Oct. 19–25		1	
Salina Cruz	May 25–31	1	1	
Saltulo	Nov. 2–8		2	
Tampico	June 14–20	2		
Do	July 1–Oct. 31	15	9	
Tuxtepec	July 3–18	3	1	State of Oaxaca.
Vera Cruz	Sept. 21–Nov. 9		8	
Palestine				June 17–23, 1924: 20 cases in northern districts.
Samaria Province—				
Samak	May 27–June 2	1		
Paraguay:				
Asuncion	June 2			Present.
Encarnacion	do			Many cases reported.
Persia:				
Bushire	June 1–30	2		
Peru:				
Arequipa	Jan. 1–June 30		5	
Poland				Mar. 30–June 28, 1924: Cases, 299; deaths, 27.
Do				June 29–July 27, 1924: Cases, 25; deaths, 5.
Portugal:				
Lisbon	May 25–June 28	7	2	
Do	June 29–Oct. 19	34	8	
Oporto	May 11–June 28	18	16	
Do	June 29–Oct. 25	22	26	
Russia				Jan. 1–31, 1924: 2,243 cases.
Moscow	July 27–Aug. 9	37		
Siam:				
Bankok	Apr. 27–June 14	3	5	
Do	Sept. 7–13	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Spain:				
Barcelona				Year 1923: Cases, 160.
Do	August–September	23	2	
Cadiz	June 1–30		5	
Do	July 1–Sept. 30		114	
Madrid	Aug. 1–Sept. 30		6	July–September, 1924: Cases, 300; deaths, 30. Oct. 6, 1924: Increase in prevalence reported.
Malaga	June 29–Oct. 18		76	
Santander	Aug. 24–30		4	
Valencia	June 8–21	3		
Do	July 13–Oct. 25	5	1	
Vigo	Aug. 17–23		1	
Straits Settlements:				
Singapore	May 4–24	2	1	
Sumatra:				
Medan	Jan. 1–31	5		
Switzerland:				
Berne	May 25–June 28	22		
Do	June 29–Sept. 27	13		
Lucerne	Aug. 1–Sept. 30	30		
Syria:				
Damascus	May 28–June 12	12		
Do	Aug. 7–Oct. 22	7		
Tunis:				
Tunis	May 27–June 30	17	4	
Do	July 1–Oct. 27	37	29	
Turkey:				
Constantinople	June 1–7	1		
Do	Aug. 17–Sept. 27	2		
Union of South Africa				Mar. 1–June 30, 1924: Cases, 167 (white, 15; native, 152). July 1–Aug. 31, 1924: 4 cases (white); 36 cases, 12 deaths (native).
Cape Province	May 4–31			Outbreaks.
Do	July 20–Sept. 20			Do.
East London	July 27–Aug. 2	1		
Orange Free State	May 4–10			Do.
Do	Aug. 17–Sept. 13			Do.
Transvaal	May 4–10			Do.
Do	July 20–Aug. 16			Do.
Johannesburg	July 6–12	1		
Yugoslavia				January–June, 1924: Cases, 308; deaths, 62. July, 1924: Cases, 9; deaths, 3.
Belgrade	July 28–Aug. 3	1		
On vessels:				
S. S. Dront	Sept. 14–20	1		At Pernambuco, Brazil. Case removed to hospital. Vessel left Cadiz, Spain, Aug. 20, 1924.
S. S. Karoa	May 7	1		At Durban, South Africa, from Bombay, India. Vessel left Bombay Apr. 16, 1924. Patient, European.
S. S. Mount Evans	July 8	1		At Key West, Fla., from Manchester, England.

TYPHUS FEVER

Algerin				Year 1923: Cases, 1,166, of which 27 were in the military population.
Algiers	May 1–June 30	24	9	
Do	July 1–Sept. 30	3		
Bolivia:				
La Paz	do		2	
Brazil:				
Porto Alegre	June 1–7		1	
Bulgaria:				
Sofia	Aug. 17–23	1		
Chile:				
Antofagasta				June 16, 1924: 2 cases in Lazaretto.
Concepcion	May 20–26		3	
Do	July 8–Oct. 13		6	
Iquique	June 22–28		1	
Do	Oct 19–25		2	
Talcahuano	May 25–31	2		
Do	June 29–Oct. 11		43	
Valparaiso	May 25–June 21		11	
Do	June 29–Oct. 25		41	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Antung	June 2-16	6		
Chungking	May 11-June 14			Present.
Manchuria—				
Harbin	Sept. 17-23	2		
Chosen:				
Chemulpo	May 1-June 30	10		
Do	July 1-31	6	2	
Seoul	May 1-June 30	43	5	
Do	July 1-Sept. 30	3		
Czechoslovakia				Apr. 1-June 30, 1924: Cases, 6.
State—				
Slovakia	Apr. 1-June 30	4		
Egypt:				
Alexandria	June 25-Aug. 26	5	1	
Cairo	Feb. 19-June 24	53	16	
Do	June 25-Aug. 18	12	7	
Port Said	July 24-Aug. 5	3		
Esthonia				Apr. 1-June 30, 1924: Cases, 37. July 1-Sept. 30, 1924: Cases 3.
Germany:				
Coblenz	July 13-19	2		
Great Britain:				
England—				
St. Helens	July 13-Sept. 20	8	3	One suspect case: July 10, 1924. Locality, vicinity of Liverpool.
Ireland—				
Dublin	June 8-14	1		
Do	July 13-19	1		
Lismore	July 19	1		
Longford	....do	1		
Greece				Jan.-Apr., 1924: Cases, 178; deaths, 27.
Saloniki	Apr. 20-May 4	6		
Do	Aug. 10-Sept. 27	2	2	
Hungary				Jan.-June, 1924: Cases, 221; deaths, 19.
Iraq:				
Bagdad	Apr. 27-May 10	2		
Do	Aug. 3-9	1		
Japan				July 1-31, 1924: Cases, 2. Jan. 1-July 31, 1924: Cases, 8; deaths, 1.
Latvia				Apr. 1-June 30, 1924: Cases, 108. July, 1924: Cases, 9. Aug. 1-31, 1924: Cases, 8.
City—				
Riga	June 1-30	1		
Lithuania				Jan.-June, 1924: Cases, 556; deaths, 48. July, 1924: Cases, 24.
Mexico:				
Durango	July 1-31		2	
Guadalajara	May 1-June 30	2	2	
Mexico City	May 24-June 28	59		Including municipalities in Federal district.
Do	June 29-Oct. 18	128		Do.
Torreon	July 1-Oct. 31		6	
Palestine:				
Acre	Aug. 19-25	1		
Jaffa	June 17-23	1		
Do	July 8-Oct. 20	6		
Jerusalem	July 1-Sept. 29	7		
Kantara	July 15-21	1		
Khuldé	Aug. 17	1		
Palestine	Oct. 14-20	1		
Ramleh district	Oct. 14-20	1		
Safad	Aug. 26-Sept.	1		
Tiberias	Aug. 19-25	1		
Peru:				
Arequipa	Jan. 1-June 30		4	
Do	July 1-Aug. 31		3	
Poland				Mar. 30-June 28, 1924: Cases, 2,947; deaths, 277.
Do				June 29-July 27, 1924: Cases, 332; deaths, 23.
Portugal:				
Oporto	June 15-21		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 28 to November 28, 1924—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia				Jan. 1-31, 1924: Cases, 14,275.
Moscow	July 27-Aug. 9	4		
Spain:				
Barcelona	July 10-16		1	
Malaga	Sept. 6-Oct. 11		2	
Switzerland:				
Lucerne	Sept. 1-30	1		
Syria:				
Aleppo	July 8-14	1		
Damascus	July 14-20	1		
Tunis:				
Tunis	May 27-June 9	4		
Turkey:				
Constantinople	May 18-June 21	7	2	
Do	July 6-Oct. 18	14	13	
Union of South Africa				Mar. 1-June 30, 1924: Cases, 418; deaths, 45. July 1-Aug. 31, 1924: Cases, 212; deaths, 31. (Colored, 203 cases; white, 9 cases.)
Cape Province				Mar. 1-June 30, 1924: Cases, 249; deaths, 23.
Do				July 1-Aug. 31, 1924: Cases, 122; deaths, 16. Sept. 14-20, outbreaks.
Natal				Mar. 1-June 30, 1924: Cases, 27;
Durban	Apr. 20-June 28	2		deaths, 5. July 1-Aug. 31, 1924: Cases, 12; deaths, 1 (colored)
Orange Free State				Mar. 1-June 30, 1924: Cases, 83; deaths, 11. July 1-Aug. 31, 1924: Cases, 40; deaths, 12.
Harrismith District	Sept. 28-Oct. 4			Outbreak. On farm.
Transvaal				Mar. 1-May 31, 1924: Cases, 39;
Johannesburg	May 11-24	2		deaths, 5. July 1-Aug. 31,
Do	June 29-Sept. 13	3		1924: Cases, 29 (colored); deaths, 2.
Yugoslavia				January-June, 1924: Cases, 252; deaths, 14. July 1-31, 1924: Cases, 9; deaths, 3.
Zagreb	Sept. 7-13	1		

YELLOW FEVER.

Brazil:				
Pernambuco	May 11-17	2	1	
Gold Coast				May, 1924: Cases, 2; deaths, 2. July, 1924: Cases, 2; deaths, 1.
Salvador:				
San Salvador	June 10-Aug. 25			Present in San Salvador and vicinity.